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## ENDANGERED, THREATENED, EXTINCT, ENDEMIC, AND RARE OR RESTRICTED UTAH VASCULAR PLANTS

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**ABSTRACT.**— The status of 382 vascular plant taxa with distribution in Utah is presented. Some 66 species are possibly endangered, 198 threatened, 7 extinct, and 20 extirpated within the state; 4 species have questionable taxonomic status. Included in the list are nearly 225 species of endemic plants, many of which are among the possibly endangered, threatened, and extinct or extirpated plants. Bibliographic citations, type locality, status, and distribution by counties is included for each species or infraspecific taxon. Two new species are described: *Psoralea pariensis* and *Eriogonum natum*. One new name, *Astragalus barnebyi*, is proposed; and one new variety, *Eriogonum umbellatum* var. *deserticum*, is proposed. The following new combinations are made: *Cycladenia humilis* var. *jonesii*; *Aralia racemosa* ssp. *bicrenata*; *Heterotheca jonesii*; *Hymenoxys depressa*; *Xanthocephalum sarothrae* var. *pomariense*; *Thelypodium integrifolium* var. *complanatum*; *Thelypodium sagittatum* var. *ovalifolium*; *Arenaria kingii* var. *plateauensis*; *Psorothamnus thompsonae*; *Najas caespitosus*; *Oenothera gouldii*; *Eriogonum corymbosum* var. *revealianum*; *Penstemon humilis* var. *obtusifolius*; *Penstemon lentus* var. *albiflorus*; and *Viola purpurea* var. *charlestonensis*.

The vascular plant flora of Utah is both large and complex. Its components are diverse, representing numerous floristic elements from many parts of North America, including unique and provincial elements restricted to the state. Species of many major geographical groupings of plants occur within the multiplicity of habitats available within Utah, all to a greater or lesser degree of their entire range. Some of these species are at the edge of their total range, and these occur in smaller portions of the state. Other taxa occur only in one or few peculiar, limited edaphic situations or habitats, while others are more widespread and cover a broad altitudinal or latitudinal expanse of Utah.

Those plants that occur only within the state, or within the natural basins that overlap the artificial political boundaries of the state, are known as local endemics. Their range can be widespread within Utah, but more often they are restricted in distribution to very limited areas.

These are plants that are of much interest to scientists, because they present living proof of the origin and evolution of species, origin of floras, and indications of relationships of plant species. These plants are those entities which have originated here or are mere remnants of species which have had a much broader area of distribution in the past.

The impress of man and his activities onto the natural habitats of Utah has reduced the area available to most native or indigenous plants. Those species of broad extent and wide ecological tolerances have withstood these activities best, with only a reduction in their range and number. Less frequently their range has increased in size as less-tolerant plants of adjoining areas have been reduced. However, many of the most unique species have areas of distribution that are very small, with only a few known individuals. In some examples the species have apparently ceased to exist in the Utah flora. In most cases the new habitats made

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available by the activities of man have been occupied by introduced, cultivated, and adventive plants from the Old World. These are the crop plants and weeds of modern agricultural and industrial society.

The phalanxes of intolerant native plants have been retreating under the impacts of agriculture and grazing for more than a century. Industrial development during most of that period was limited in extent, if not in effect. In Utah most of these activities were restricted mainly to the broad valleys and river basins, where plant communities that were relatively fragile are now almost totally lacking within the state. However, these sites apparently contained few of the narrowly endemic plant species. With the advent of the second half of the twentieth century, there has occurred a resurgence of economic activities, mineral exploration, and a greater use of the public lands which hitherto had been considered as useful (if considered useful at all) only for grazing and watershed. The rapid spread of industrial development into pre-

viously undeveloped, low-elevation, arid lands in the southern portions of the state is all the more impressive when one considers that most of the narrowly restricted plants occur in those areas (Figs. 1 and 2). Plant species which were once remote from the impacts of civilization—industrial, agricultural, or recreational activities—are now threatened not only by the effects of ranching, construction, and off-road travel, but even by the very agencies of government which are established by law to oversee in the public trust the proper use and protection of the public lands. At the present time, hardly a part of Utah, even that set aside as national parks, monuments, or wilderness areas, is safe from degradation by masses of people or by those seeking to exploit the very natural resources and features these unique areas were established to protect.

Inroads into the most remote and most arid portions of the state now guarantee further reduction of the unique flora of Utah. Naturally, those entities that will suffer greatest from the commercialization of the state will be those which have specific and naturally restricted areas of

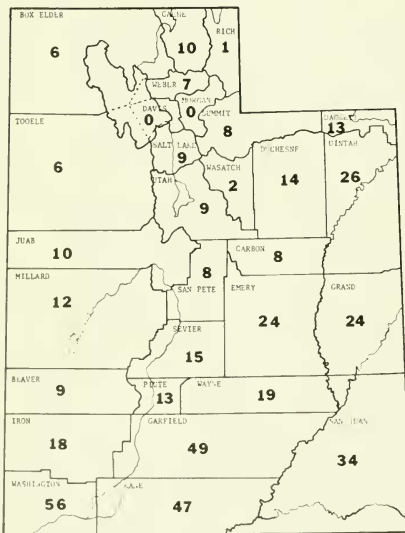


Fig. 1. Distributional incidence of endangered, threatened, extinct, or extirpated Utah plants by county; total number is greater than the total for the state due to overlap.

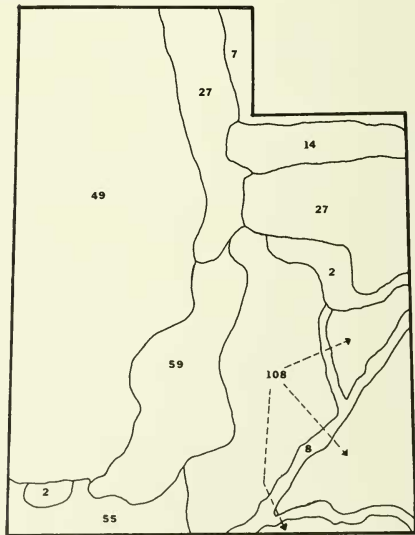


Fig. 2. Distribution of endangered, threatened, extinct, and rare or restricted Utah plants, by phytogeographical subdivision.

distribution. Only the most enlightened management and protection from unreasonable exploitation will ensure the continuation of the rich indigenous flora that these plants represent.

Commercial exploitation need not bring about the demise of species, although the basic nature of the flora will change. It is a fact of biology that in even the most enlightened and carefully planned development, there will be a reduction in the native vegetation. Reclamation attempts will be made with Old World introductions, or with selected ecotypes of indigenous plants, and not with those that occurred in the region prior to its modification. Both of these types of plants can hardly replace the quality of those cleared and destroyed by construction activities. Revegetation of a disturbed site can be more or less productive from an economic standpoint, but natural plant succession will require generations before any real resemblance of the natural vegetation will again be possible, and then, depending on the nature of the disturbance, the native vegetation occupying the site can be of an entirely different composition than formerly. Indigenous taxa with specific habitat requirements will not survive if those habitats are altered, and there is no known technology which can simulate some of the peculiar habitats present in the state—which are now occupied by narrowly restricted plants—and no technology can ever replace an extinct species (Reveal 1973b).

Because of the rate at which Utah is being impressed by all the forces of a modern society, it seems important that the endangered, threatened, extinct, endemic, and rare or restricted vascular plants of Utah be inventoried, and that their known or historic areas of distribution be outlined. That task is the basic goal of this paper, but this is only a pioneering effort. Much work remains to be done.

While the present paper was in preparation, the secretary of the Smithsonian Institution, S. Dillon Ripley, transmitted to the Congress of the United States a "report on endangered and threatened species of the United States." This report (cited herein as "Ripley 1975") lists numerous plants from Utah as either threatened, endangered, possibly extinct, or

probably extinct. Each category was abbreviated as T, E, PoEx, or PrEx, respectively.

That report was prepared during the calendar year of 1974 as mandated by the Endangered Species Act of 1973 (Public Law 93-205) in which the secretary of the Smithsonian was to report to Congress within one year on all of the "species of plants which are now or may become endangered or threatened" in the United States (sec. 12). The Congress provided no funding for the preparation of this report, and the time restrictions prevented a detailed field examination of all species included in the list. Some states, notably California and Texas, with active offices concerned with endangered plant species, were able to provide precise data; other states were able to supply some information, and still others had little or no input into the final report, except that gathered by the committee established by the secretary to prepare a statement for the Congress. The data for the state of Utah was provided by a number of individuals (including the authors of this paper, and Reveal served on the Smithsonian committee), but time did not permit the type of critical examination of each taxon which has been largely possible for the present paper. The Smithsonian report (Ripley 1975) was published in the Federal Register (Schreiner 1975) as a "notice of consideration," and we understand that the Department of Interior will submit a revised listing in the near future. Disagreement as to the designation of degree of endangerment between this paper and that of Ripley (1975) represents the results of a more detailed and concentrated survey of the Utah flora, and is based on detailed literature search and personal information of the present authors and that of their colleagues who have reviewed the manuscript. These differences have largely been resolved and will appear in the Smithsonian's revised list to be submitted early in 1976 to the Secretary of the Interior. Much of the information has been acquired through many years of investigation of the Utah flora, both in the field and in the herbarium, and has been stimulated by the Ripley (1975) report.

The designation of the status of an individual taxon as belonging to a partic-

ular category is subjective. Still, it is based on the best information available to us at the present time (a requirement of the Endangered Species Act). A plant species is considered as "endangered" when its known area of distribution is very small, and when the expected development or exploitation of the area occupied has already occurred or is imminent. A "threatened" plant is one of somewhat larger known areal extent, but which has experienced or is now experiencing a reduction of its natural distributional area. These are the two major categories required by law to be designated. Plants that are "rare or restricted" are those which have been collected only occasionally or which are known from very limited regions of the state; they may or may not be widely distributed elsewhere outside the political confines of Utah. Introduced species are excluded from this category, even though they might be restricted or even rare.

Plants considered to be "endemic" are those whose entire distributional area is within Utah or within one of the natural drainage basins which overlap the political boundaries of the state. Some plants in this category especially are poorly known taxonomically and biologically, and in these cases we have so indicated the need for a careful systematic evaluation of the taxon to determine the status of the plant entity.

All statements about status of those plants not endemic to Utah are with regard to the occurrence of those plants within Utah. In many, if not most of these cases, the species are widespread and common to abundant in other portions of their area of distribution. If they are limited, rare, or possibly extirpated from Utah, only that portion of their range is considered in making the designation. This follows the guidelines established by California and Texas in which the endangered and threatened lists are based solely upon the situation of the plant in question within the confines of the state boundaries (Table 1).

Plants listed in one of the categories designated above by Ripley (1975) are included here, whether or not they are considered as something other than threatened, endangered, or extinct on the new list that will be published in 1976. Ob-

vious errors, which will not be repeated in the future, such as *Lewisia maguirei* and *Penstemon decurvus*, to mention only two, are excluded.

Voucher specimens for some of the reports are cited in the distribution statements (e.g., Harrison 6370, for *Cymopterus basalticus*). Bibliographic citations in support of distributional data are included for many species, especially for those which are obscure or are poorly represented in herbaria. We are not making any attempt to provide precise location data (except as might be obtained from published type localities) in fear of commercial exploitation of some plants (i.e., catci and orchids) and because of the possibility of destruction of selected populations by those having a vested interest in ridding parcels of land of any species of plant that might fall under the protection of the provisions of the Endangered Spe-

TABLE 1. Numerical summary of the endangered, threatened, extinct, extirpated and rare or endemic species in Utah.

County	Endangered	Threatened	Extinct	Extirpated	Rare/Endemic
Beaver	1	7	0	1	11
Box Elder	1	5	0	0	1
Cache	2	8	0	0	3
Carbon	2	6	0	0	11
Daggett	3	9	0	1	4
Davis	0	0	0	0	4
Duchesne	3	9	1	1	14
Emery	4	19	1	0	28
Garfield	9	39	1	1	38
Grand	6	17	0	1	30
Iron	2	15	1	0	9
Juab	0	7	0	3	10
Kane	12	31	0	4	26
Millard	2	9	1	0	14
Morgan	0	0	0	0	0
Piute	0	12	0	1	8
Rich	1	1	0	0	1
Salt Lake	0	8	0	1	8
San Juan	7	25	0	2	27
Sanpete	1	6	1	0	9
Sevier	2	13	0	0	7
Summit	2	3	0	3	6
Tooele	0	3	0	3	7
Uintah	7	17	1	1	14
Utah	1	7	0	1	13
Wasatch	0	1	1	0	5
Washington	12	41	0	3	24
Wayne	5	14	0	0	29
Weber	0	7	0	0	4



cies Act of 1973. Nevertheless, those agencies charged with protection of endangered or threatened plants must determine the precise localities of those entities in order to plan for their survival.

Maps are presented (Figs. 1 and 2) which demonstrate the unequal distribution of these unusual plants. In Figure 1 the number of taxa known of each county is indicated. The total appears to be very large, but this is due to many of the species being listed in several counties when area of distribution occurs outside a single county. Phytogeographic regions of Utah are plotted in Figure 2, and the number of taxa considered to be unusual is cited for each. The number of taxa totals are less than for the entire state because some distributional data are so indefinite as to not be plotable. Also, the figures represent an attempt to plot plants within their main area of distribution; double representation has been avoided. This accounts for the apparent discrepancies between the two maps.

#### RECOMMENDATIONS

Land use planning should take into account the presence of the unusual plants present in the state of Utah. If and when the Secretary of Interior proclaims any species of plants found in Utah as endangered or threatened, they will fall under the protective provisions of the Endangered Species Act which, in section seven, calls upon all federal departments and agencies "to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species." Those which are protected by law must be determined, and their areas of distribution should become known to the agencies responsible for their protection. Questionable taxonomic units should be investigated in order to determine their nature and area of distribution. Plants thought to be extinct should be sought in carefully coordinated field studies. The results of these studies should be reported to the Secretary of the Interior so that information about the various species may be updated from time to time, and so the status of each taxon can be reviewed. When new species are described from Utah, their status should be evaluated,

and if they should prove to be endangered or threatened, that information should be presented to the Secretary so that such species may be considered for the federal endangered species list.

In a recent issue of the Federal Register, Greenwalt (1975) proposed a "rule-making" for various amendments to the Endangered Species Act of 1973. These amendments introduce the term "plant" into many sections of the act. However, as Lachenmeier (1974) has pointed out, there are several legal and constitutional questions about the act that need to be resolved still, and from a botanical point of view, there still exist certain discriminatory differences between "wildlife" and "plants." These must be resolved in the future.

In and for the state of Utah, we recommend that a review board be appointed to oversee the protection of Utah's most unique plants, and funding should be forthcoming to allow a real understanding not only of the endangered and threatened species, but the entire state's flora. The state should adopt the federal act and include within its own listing those species of the state which are endangered or threatened within its borders. Policies should be adopted that will determine basic land use with regard to these unique plants, and "critical habitats" as provided by the act should be investigated throughout the state (see also Greenwalt & Gehringer 1975). Above all, prompt actions must be taken by the state to preserve and protect the state's unique flora, and the members of the botanical community must be ready to aid and assist all levels of government in this important endeavor.

#### NOTE

In the following list, we are abbreviating journals according to the abbreviations listed by Lawrence et al. (1968) and herbaria according to listing given by Holmgren and Keuken (1974). We have attempted to give the type information as published in the original place of publication; however, we are not attempting to typify any name, nor is the herbarium cited considered a statement of lectotypification. This information is given for the convenience of the reader. For the most part, the abbreviations of the authors fol-

low the unpublished suggestions of the Index Kewensis staff.

#### ACKNOWLEDGMENTS

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#### APIACEAE

*Angelica wheeleri* S. Wats., Amer. Naturalist 7: 301. 1873.

TYPE: Utah, *Wheeler s.n.* (GH).

STATUS: Endemic, evidently rare and local, possibly threatened.

DISTRIBUTION: Northern and central Utah (Mathias & Constance 1945).

*Cymopterus basalticus* M. E. Jones, Contr. W. Bot. 12: 6. 1908.

TYPE: Half-way Station, west of Wa Wa, Millard or Beaver Co., Utah, 7,000 feet, 15 May 1906, *M. E. Jones s. n.* (POM).

STATUS: Restricted and locally abundant, neither threatened nor endangered (Ripley, T).

DISTRIBUTION: Western Utah (Millard Co., *Harrison 6370*; *Matthews 14* [BRY]), and adjacent Nevada (Mathias & Constance 1945).

*Cymopterus coulteri* (M. E. Jones) Mathias, Ann. Missouri Bot. Gard. 17: 276. 1930, based on *C. corrugatus* var. *coulteri* M. E. Jones, Contr. W. Bot. 12: 19. 1908.

TYPE: Juab, Juab Co., Utah, 4,000 feet, 30 Apr 1880, *M. E. Jones 1691* (US).

STATUS: Endemic, rare and restricted, threatened (Ripley, T).

DISTRIBUTION: Western Utah (Sanpete Co., *Mabey 5300* [BRY]).

*Cymopterus duchesnensis* M. E. Jones, Contr. W. Bot. 13: 12. 1910.

TYPE: Among loose rocks on southern slopes of mesas, Myton, Duchesne Co., Utah, 5,000 feet, 20 May 1908, *M. E. Jones s.n.* (POM).

STATUS: Endemic, rare and restricted, threatened (Ripley, E).

DISTRIBUTION: Duchesne and Uintah counties, Utah (*Welsh 180* [BRY]);

*Holmgren & Reveal 1887* [NY, UTC]; *Holmgren & Holmgren 5169* [BRY, NY, UTC]).

*Cymopterus jonesii* Coult. & Rose, Rev. N. Amer. Umbell. 80. 1888.

TYPE: Frisco, Beaver Co., Utah, 8,000 feet, 22 Jun 1880, *M. E. Jones 1808* (US).

STATUS: Rare and restricted.

DISTRIBUTION: Southwestern Utah and Nevada (Mathias & Constance 1945).

*Cymopterus higginsii* Welsh, Great Basin Nat. 35: 377. 1976.

TYPE: Shadscale dominated bajada, on gravelly pedimental fan east of None Butte, ca 17 miles east of Glen Canyon City, Kane Co., Utah, 31 May 1975, *S. L. Welsh 12740* (BRY).

STATUS: Endemic, local; possibly threatened.

DISTRIBUTION: Eastern Kane Co., Utah.

*Cymopterus minimus* (Mathias) Mathias, Brittonia 2: 245. 1936, based on *Aulospermum minimum* Mathias, Ann. Missouri Bot. Gard. 17: 353. 1930.

TYPE: On the upper part of the "Breaks" at Cedar Breaks, Iron Co., Utah, ca 10,500 feet, *Mathias 723* (MO).

STATUS: Endemic, rare and restricted to Cedar Breaks, possibly endangered (Ripley, E).

DISTRIBUTION: Cedar Breaks, Iron Co., Utah.

*Cymopterus newberryi* (S. Wats.) M. E. Jones, Zoe 4: 47. 1893, based on *Pseudanum newberryi* S. Wats., Proc. Amer. Acad. Arts 11: 145. 1876.

STATUS: Widespread and at least locally abundant, neither threatened nor endangered (Ripley, T).

DISTRIBUTION: Garfield, Grand, Kane, Millard, San Juan, Uintah, Washington, and Wayne counties, Utah (BRY, UTC), and northern Arizona (Mathias & Constance 1945).

*Cymopterus rosei* M. E. Jones, Contr. W. Bot. 12: 17. 1908.

TYPE: Richfield, Sevier Co., Utah, 18 Jun 1898, *M. E. Jones 30* (US).

STATUS: Endemic, rare and local, possibly threatened (Ripley, T).

DISTRIBUTION: Iron, Sanpete, Sevier, and Washington counties, Utah (*Maquire 19131*; *Holmgren 10932* [UTC]).

*Ligusticum porteri* Coult. & Rose var. *brevilobum* (Rydb.) Mathias & Constance, Bull. Torrey Bot. Club 68: 123. 1941, based on *L. brevilobum* Rydb., Fl. Rocky Mts. 613, 1064. 1917.

TYPE: Aquarius Plateau, Utah 5 Aug 1905, *Rydberg & Carlton 7473* (NY).

STATUS: Endemic, rare and local; possibly threatened.

DISTRIBUTION: Aquarius Plateau, Garfield Co., Utah (Mathias & Constance 1941).

*Lomatium latilobum* (Rydb.) Mathias, Ann. Missouri Bot. Gard. 25: 281. 1937. based on *Cynomarathrum latilobum* Rydb., Bull. Torrey Bot. Club 40: 73. 1913.

TYPE: Proposed dam site, near Wilson Mesa, Grand Co., Utah, *Rydberg & Garrett 8371* (NY).

STATUS: Endemic, rare and local, possibly threatened.

DISTRIBUTION: Grand Co., Utah (BRY; UTC).

*Lomatium megarrhizum* (A. Nels.) Mathias, Ann. Missouri Bot. Gard. 25: 282. 1937, based on *Peucedanum megarrhiza* A. Nels., Bull. Torrey Bot. Club 26: 130. 1899.

STATUS: Rare and local, possibly threatened.

DISTRIBUTION: Emery Co., Utah (*Higgins 1268* [BRY]) and southwestern Wyoming (Mathias & Constance 1945; *Higgins 1972b*).

*Lomatium minimum* Mathias, Ann. Missouri Bot. Gard. 25: 273. 1937.

TYPE: Near the hotel, on dry slopes bordering Bryce Canyon, Garfield Co., Utah, 8,600 feet, *Mathias 670* (MO).

STATUS: Endemic, local, possibly threatened (Ripley, T).

DISTRIBUTION: Garfield, Iron, and Kane counties, Utah (BRY, UTC).

*Lomatium scabrum* (Coult. & Rose) Mathias, Ann. Missouri Bot. Gard. 25: 275. 1937, based on *Cynomarathrum scabrum* Coult. & Rose, Contr. U.S. Natl. Herb. 7: 247. 1900.

TYPE: Frisco, Beaver Co., Utah, 2,400 meters, *Jones 1864* (US).

STATUS: Endemic (but possibly in Mohave Co., Arizona), locally common, not threatened nor endangered.

DISTRIBUTION: Beaver, Iron (UT), Millard, and Washington counties, Utah (BRY).

*Musineon lineare* (Rydb.) Mathias, Ann. Missouri Bot. Gard. 17: 265. 1930. based on *Daucophyllum lineare* Rydb., Bull. Torrey Bot. Club 40: 69. 1913.

TYPE: Near Logan, Cache Co., Utah, 9 Aug 1895, *Rydberg s.n.* (NY).

STATUS: Endemic, possibly threatened.

DISTRIBUTION: Cache Co., Utah (*Holmgren 3595* [UTC]).

#### APOCYNACEAE

*Cycladenia humilis* Benth. var. *jonesii* (Eastw.) Welsh & Atwood, stat. et comb. nov., based on *C. jonesii* Eastw., Leaf. W. Bot. 3: 159. 1942.

TYPE: San Rafael Swell, Emery Co., Utah, 19 May 1914, *M. E. Jones s.n.* (CAS).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Emery and Grand counties, Utah.

This entity is known in Utah from three basic collections: the type as cited above, a collection by Cottam (UT) also from the San Rafael Swell, and a collection from Castle Valley, Grand Co., Utah (Welsh 1970b).

#### ARALIACEAE

*Aralia racemosa* L. ssp. *bicrenata* (Wootton & Standley) Welsh & Atwood, stat. & comb. nov., based on *A. bicrenata* Wootton & Standley, Contr. U.S. Natl. Herb. 16: 157. 1913.

STATUS: Rare; restricted to Zion Narrows, Washington Co., Utah.

DISTRIBUTION: Washington Co., Utah (*Welsh 12366* [BRY]), and from southeastern Canada south to Georgia, westward to Arizona and northern Mexico (Kearney & Peebles 1951); the subspecies is from Utah and Arizona.

#### ASCLEPIADACEAE

*Asclepias cutleri* Woodson, Ann. Missouri Bot. Gard. 26: 263. 1939.

STATUS: Rare, threatened.

DISTRIBUTION: Grand (*Cottam 5799* [BRY]) and San Juan (*Holmgren 3144* [UTC]) counties, Utah, and from north-eastern Arizona.

*Asclepias engelmanniana* Woodson, Ann. Missouri Bot. Gard. 28: 207. 1941.

STATUS: Rare.

DISTRIBUTION: Grand (*Rydberg & Garrett 8504* [UT]) and San Juan (*Welsh et al. 2930* [BRY]) counties, Utah; from Nebraska to Texas and Arizona.

*Asclepias labriiformis* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 708. 1895.

TYPE: Capital Wash, near the Henry Mts., Wayne Co., Utah, 5,000 feet, in sandy gulch, 19 Jul 1894, *M. E. Jones 5650* (POM).

STATUS: Endemic to the state but common, neither threatened nor endangered.

DISTRIBUTION: Emery, Garfield, San Juan, Uintah, and Wayne counties, Utah (BRY).

*Asclepias ruthiae* Maguire & Woodson, Ann. Missouri Bot. Gard. 28: 245. 1941.

TYPE: Frequent, sandy soil, vicinity of water tanks, Calf Spring Canyon, 5,000 feet, San Rafael Swell, 18 miles southeast of Castle Dale, Emery Co., Utah, 10 May 1940, *Maguire & Maguire 18310* (UTC).

STATUS: Endemic, common in disjunct populations on the San Rafael Swell; possibly threatened (Ripley, T).

DISTRIBUTION: Emery (*Cottam 5500*, *Harrison 8067*, *Higgins & Reveal 1285a* [BRY]), Grand [see Woodson 1954], and Wayne (*Harrison 11223* and *11891* [BRY]) counties, Utah.

#### ASTERACEAE

*Chamaechaenactis scaposa* (Eastw.) Rydb., Bull. Torrey Bot. Club 33: 156. 1906, based on *Chaenactis scaposa* Eastw., *Zoe* 2: 231. 1891.

STATUS: Restricted, rare except locally, not threatened nor endangered.

DISTRIBUTION: Carbon, Duchesne, Emery, San Juan, Uintah, and Wayne counties, Utah, and western Colorado (BRY, UTC).

*Cirsium rydbergii* Petrak, Beih. Bot. Centralbl. 35 (2): 315. 1917.

TYPE: Along the San Juan River near Bluff, San Juan Co., Utah, 1,200-1,500 meters, 1-2 Jul 1911, *Rydberg 10001* (G?).

STATUS: Habitat specific, in hanging gardens, restricted and possibly threatened.

DISTRIBUTION: Garfield, Grand, Kane, San Juan, and Wayne counties, Utah (BRY), and Black Mesa, Apache Co., Arizona (*Howell & McClintock 1960*).

*Enceliopsis nutans* (Eastw.) A. Nels., Bot. Gaz. 47: 433. 1909, based on *Encelia nutans* Eastw., *Zoe* 2: 230. 1891.

STATUS: Habitat specific, in heavy clay soils, restricted and rare.

DISTRIBUTION: Carbon, Duchesne, Emery, Grand, Uintah, and Wayne counties, Utah (BRY, UTC), and western Colorado (*Harrington 1954*).

*Erigeron abajoensis* Cronq., Brittonia 6: 168. 1947.

TYPE: Abajo Mts. (eastern range), 3,000-5,300 meters, San Juan Co., Utah, 17 Aug 1911, *Rydberg & Garrett 9755* (NY).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Garfield, Kane, and San Juan counties, Utah (BRY).

*Erigeron arenarioides* (D. C. Eaton) Rydb., Fl. Rocky Mts. 1067. 1917, based on *Aster arenarioides* D. C. Eaton ex A. Gray, Proc. Amer. Acad. Arts 8: 647. 1873.

TYPE: Rocky gulch above Cottonwood Canyon, Wasatch Mountains, Salt Lake Co., Utah, 8,000-9,000 feet, Aug 1869, *Waston 547* (US).

STATUS: Endemic and rare, restricted to rock crevices, threatened.

DISTRIBUTION: Salt Lake, Tooele, Utah, and Weber counties, Utah (BRY, UTC; Cronquist 1947).

*Erigeron cronquistii* Maguire, Brittonia 5: 201. 1944.

TYPE: Cliffs, north side of Logan Canyon ¼ mile below forks, Bear River Range, Cache Co., Utah, 5,800 feet, 20 May 1939, *Maguire 16681* (NY).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Cache Co., Utah (Cronquist 1947).



*Erigeron garrettii* A. Nels., Manual Bot. Centr. Rocky Mts. 526. 1909.

TYPE: Big Cottonwood Canyon, Salt Lake Co., Utah, 28 Jun 1905, *Garrett 1310* (RM).

STATUS: Endemic, rare and possibly threatened (Ripley, T).

DISTRIBUTION: High altitudes in Box Elder (UT), Salt Lake and Utah counties, Utah (BRY; Cronquist 1947).

*Erigeron flagellaris* A. Gray var. *trilobatus* Maguire ex Cronq., Brittonia 6: 258. 1947.

TYPE: Canyon to Cedar Breaks, 12 miles east of Cedar City, Iron Co., Utah, 5 Aug 1934, *Maguire 14947* (NY).

STATUS: Endemic and rare, endangered (Ripley, E).

DISTRIBUTION: Iron Co., Utah; known only from the type locality (Cronquist 1947).

*Erigeron kachinensis* Welsh & Moore, Proc. Utah Acad. Sci. 45: 231. 1968.

TYPE: Hanging gardens and seeps, near Kachina Natural Bridge, Natural Bridges N.M., San Juan Co., Utah, 13 Aug 1963, *Welsh & Moore 2398* (BRY).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: San Juan Co., Utah; known only from the type locality (Welsh & Moore 1968).

*Erigeron maguirei* Cronq., Brittonia 6: 165. 1947.

TYPE: Dry rocky sandy canyon bottom, Calf Spring Wash, 1.5 mile up San Rafael Swell, 16 Jun 1940, 5,500 feet, *Maguire 18459* (NY).

STATUS: Endemic, rare and possibly extinct (Ripley, E).

DISTRIBUTION: Emery Co., Utah; known only from the type locality.

*Erigeron mancus* Rydb., Fl. Rocky Mts. 902, 1067. 1917.

TYPE: LaSal Mts., Grand or San Juan Co., Utah, 7 Jul 1911, *Rydberg & Garrett 8671* (NY).

STATUS: Endemic, rare and possibly threatened (Ripley, T).

DISTRIBUTION: LaSal Mts., Grand and San Juan counties, Utah (Cronquist 1947.)

*Erigeron religiosus* Cronq., Brittonia 6: 258. 1947.

TYPE: Clear Creek, Zion N.P., Washington Co., Utah, 8 Sep 1938, *Eastwood & Howell 6339* (CAS).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Kane (*Harrison 11085* [BRY]) and Washington counties, Utah (Cronquist 1947).

*Erigeron sionis* Cronq., Brittonia 6: 258. 1947.

TYPE: Zion N.P., Washington Co., Utah, 1-3 Aug 1925, *Pilsbry s.n.* (PH).

STATUS: Endemic, very rare and endangered (Ripley, E).

DISTRIBUTION: Washington Co., Utah; known only from type locality.

*Flaveria campestris* J. R. Johnston, Proc. Amer. Acad. Arts 29: 287. 1903.

STATUS: Rare, restricted, but not apparently threatened or endangered.

DISTRIBUTION: Grand Co., Utah (*Maguire 1937*; *Harrison et al. 1964*); Colorado, New Mexico and northern Mexico.

*Gaillardia flava* Rydb., N. Amer. Fl. 34: 139. 1915.

TYPE: Lower Crossing of the Price River (see *Jones 1965*), Emery Co., Utah, 2 Jul 1898, *M. E. Jones 6412* (US).

STATUS: Endemic, rare and endangered.

DISTRIBUTION: Emery Co., Utah (*Cottam & Hutchings 2176* [BRY]).

*Gaillardia spathulata* A. Gray, Proc. Amer. Acad. Arts 12: 59. 1876.

TYPE: Rabbit Valley, Wayne Co., Utah, 7,000 feet, 1875, *Ward s.n.* (GH).

STATUS: Endemic, common throughout its range, neither threatened nor endangered.

DISTRIBUTION: Carbon, Emery, Garfield, Grand, and Wayne counties, Utah (BRY, UTC).

*Haplopappus scopulorum* (M. E. Jones) Blake in Tidestrom, Contr. U.S. Natl. Herb. 25: 546. 1925, based on *Bigelovia menziesii* var. *scopulorum* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 692. 1895.

TYPE: Near Cedar City, Iron Co., Utah, 6,000 feet, 10 May 1894, *M. E. Jones 5204v* is the first of two collections cited (POM).

STATUS: Uncommon, habitat specific,

neither endangered nor threatened (Ripley, T).

DISTRIBUTION: Iron, Kane (?), and San Juan (*Welsh & Moore 2447*; *Welsh 8813*; *Atwood 4100* [BRY]) counties, Utah, and Coconino Co., Arizona (McDougall 1973).

*Helianthus anomalus* Blake, J. Wash. Acad. Sci. 21: 333. 1931.

TYPE: Desert between Hanksville and Henry Mts., Wayne Co., Utah, 5 Jul 1930, *Stanton 4806* (US).

STATUS: Restricted to dunes and sandy washes, where locally abundant, neither threatened nor endangered.

DISTRIBUTION: Emery, Garfield, Grand, Juab, Kane, Millard, San Juan, Tooele, Uintah, Washington, and Wayne counties, Utah, and northern Arizona (Blauer 1966).

*Helianthus canus* (Britton) Wootton & Standley, Contr. U.S. Natl. Herb. 6: 190. 1913, based on *Helianthus petiolaris* var. *canus* Britton. Mem. Torrey Bot. Club 5: 334. 1894.

STATUS: Rare, possibly threatened.

DISTRIBUTION: San Juan Co., Utah (*Cottam 2544* [BRY]), and from western Texas to southern California and northern Mexico.

*Helianthus deserticolus* Heiser, Proc. Indiana Acad. Sci. 70: 209. 1961.

TYPE: 3.3 miles west of Hurricane, Washington Co., Utah, 29 Jun 1957, *Stoutamire 2574* (IND).

STATUS: Rare, restricted and possibly threatened.

DISTRIBUTION: Washington Co., Utah, Mohave Co., Arizona, and Clark Co., Nevada (Heiser 1961).

*Heterotheca jonesii* (Blake) Welsh & Atwood, comb. nov., based on *Chrysopsis jonesii* Blake in Tidestrom, Contr. U.S. Natl. Herb. 25: 536. 1925, a substitute name for *C. caespitosa* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 694. 1895. not Nutt.

TYPE: Springdale, Washington Co., Utah, 4,000 feet, 16 May 1894, *M. E. Jones 5249u* (POM).

STATUS: Endemic, rare, local, and endangered.

DISTRIBUTION: Washington and Garfield (*Harrison 12343* [BRY]) counties, Utah.

*Heterotheca grandiflora* Nutt., Trans. Amer. Philos. Soc. II, 7: 315. 1840.

STATUS: Rare, local and restricted.

DISTRIBUTION: Washington Co., Utah (*Welsh et al. 9530* [BRY]); also in California and Arizona.

*Heterotheca subaxillaris* Britton & Rusby, Trans. New York Acad. Sci. 7: 10. 1887.

STATUS: Rare, possibly endangered.

DISTRIBUTION: Grand Co., Utah (*Welsh & Moore 2744* [BRY]); widespread elsewhere in the United States.

*Hulsea heterochroma* A. Gray, Proc. Amer. Acad. Arts 7: 359. 1868.

STATUS: Local, rare and possibly threatened.

DISTRIBUTION: Washington Co., Utah (*Higgins & Atwood 1410* [BRY]; *Higgins 1972b*); California and southern Nevada.

*Hymenopappus filifolius* Hook. var. *alpestris* (Maguire) Shinnery, Rhodora 61: 155. 1959, based on *H. nudipes* var. *alpestris* Maguire, Amer. Midl. Naturalist 37: 144. 1947 (includes var. *nudipes* (Maguire) Turner).

TYPE: Cedar Breaks rim, Iron Co., Utah, 23 Jun 1940, *Maguire 19023* (NY).

STATUS: Restricted but locally common, not threatened nor endangered.

DISTRIBUTION: Duchesne, Garfield, Iron, Kane, Piute, Sevier, Summit, and Utah counties, Utah, and Lincoln Co., Wyoming (Turner 1956).

*Hymenopappus filifolius* Hook. var. *tomentosus* (Rydb.) Turner, Rhodora 58: 237. 1956, based on *H. tomentosus* Rydb., Bull. Torrey Bot. Club 27: 633. 1900.

TYPE: St. George, Washington Co., Utah, 1877, *Palmer 270* (NY).

STATUS: Endemic, rare and restricted, threatened (Ripley, T).

DISTRIBUTION: Kane and Washington counties, Utah (Turner 1956).

*Hymenoxyis depressa* (Torr. & Gray ex Gray) Welsh & Reveal, comb. nov., based on *Actinella depressa* Torr. & Gray ex Gray, Mem. Amer. Acad. Arts II, 4: 100. 1849.

STATUS: Rare and local, possibly threatened.

DISTRIBUTION: Emery (BRY) and

Garfield (UT) counties, Utah, and from Colorado.

*Lepidospartum latisquamum* S. Wats., Proc. Amer. Acad. Arts 25: 133. 1890.

STATUS: Restricted and rare, possibly threatened.

DISTRIBUTION: Millard Co., Utah (BRY), and adjacent Nevada west to eastern California.

*Lygodesmia grandiflora* (Nutt.) Torr. & Gray var. *stricta* Maguire, Amer. Midl. Naturalist 37: 145. 1947.

TYPE: Frequent on adobe clay, 1 mile south of Price, Carbon Co., Utah, 5 Jun 1940, Maguire 18417 (NY).

STATUS: Endemic, rare, restricted and endangered.

DISTRIBUTION: Carbon Co., Utah; known only from the type locality.

*Machaeranthera glabriuscula* (Nutt.) Cronq. & Keck var. *confertifolia* Cronq., Leaf. W. Bot. 10: 11. 1963.

TYPE: Barren clay slopes in pinyon-juniper zone, 11 miles northeast of Henrieville, Garfield Co., Utah, 7,000 feet, 31 May 1961, Cronquist 9164 (NY).

STATUS: Endemic, rare and threatened.

DISTRIBUTION: Garfield and Kane counties, Utah (BRY, UTC).

*Machaeranthera grindelioides* (Nutt.) Shinnars var. *depressa* (Maguire) Cronq. & Keck, Brittonia 9: 237. 1957, based on *Haplopappus nuttallii* var. *depressa* Maguire, Amer. Midl. Naturalist 37: 144. 1947.

TYPE: Warm Point, 5 miles southwest of Desert Range Experiment Station headquarters, Millard Co., Utah, 10 Jun 1941, Maguire 20859 (NY).

STATUS: Rare and restricted, neither threatened nor endangered (Ripley, T).

DISTRIBUTION: Beaver and Millard counties, Utah (BRY), and Eureka, Lincoln and White Pine counties, Nevada (Maguire 1947).

*Machaeranthera kingii* (D. C. Eaton) Cronq. & Keck, Brittonia 9: 238. 1957, based on *Aster kingii* D. C. Eaton in King, Rep. Geol. Explor. 40th Parallel 5: 141. 1871.

TYPE: Wasatch Mts., above Cotton-

wood Canyon, Salt Lake Co., Utah, 1869, 9,000 feet, Watson 507 (GH).

STATUS: Endemic, rare and restricted, possibly threatened.

DISTRIBUTION: Cache, Salt Lake and Utah counties, Utah (BRY, UTC).

*Malacothrix clelandii* A. Gray, Bot. Calif. 1: 433. 1876.

STATUS: Local and infrequent.

DISTRIBUTION: Washington Co., Utah (Atwood 4966 [BRY, WTS]); also in Nevada and California.

*Parthenium ligulatum* (M. E. Jones) Barneby, Leaf. W. Bot. 5: 20. 1947, based on *P. alpinum* var. *ligulatum* M. E. Jones, Contr. W. Bot. 13: 16. 1910.

TYPE: On nearly bare clayey and gravelly knolls on ridges, Theodore [now Duchesne], Duchesne Co., Utah, 6,000 feet, M. E. Jones s.n. (POM).

STATUS: Endemic, rare and restricted, threatened (Ripley, T).

DISTRIBUTION: Duchesne and Emery counties, Utah (BRY, NY).

*Senecio dimorphophyllus* Greene var. *intermedius* Barkley, Trans. Kansas Acad. Sci. 65: 363. 1962.

TYPE: Edge of swampy places, Geysers Pass, LaSal Mts. Utah, 10,500 feet, Payson & Payson 4097 (MO).

STATUS: Endemic, rare, restricted and threatened (Ripley, T).

DISTRIBUTION: San Juan Co., Utah; known only from the type area.

*Sphaeromeria capitata* Nutt., Trans. Amer. Philos. Soc. II, 7: 402. 1841.

STATUS: Local and rare, threatened.

DISTRIBUTION: Grand Co., Utah (UTC); Wyoming and southern Montana.

*Townsendia aprica* Welsh & Reveal, Brittonia 20: 375. 1968.

TYPE: Ca 6 miles south of Fremont Junction along Utah Highway 72, on low, rolling exposed gray clay slopes, among scattered igneous boulders, Sevier Co., Utah, ca 6,500 feet, 1 May 1966, Reveal & Welsh 721 (BRY).

STATUS: Endemic, rare and restricted, endangered (Ripley, E).

DISTRIBUTION: Sevier Co., Utah (BRY; Welsh & Reveal 1968).

*Townsendia mensana* M. E. Jones, Contr. W. Bot. 13: 15. 1910.

TYPE: Benches of the Uinta Mts., near Theodore [now Duchesne], Duchesne Co., Utah, 14 May 1908, *M. E. Jones s.n.* (POM).

STATUS: Endemic, locally restricted, possibly threatened.

DISTRIBUTION: Duchesne and Uintah counties, Utah (Reveal 1970b).

*Townsendia minima* Eastw., Leaflet. W. Bot. 1: 206. 1936.

TYPE: Bryce Canyon, Garfield Co., Utah, 19 Jun 1933, *Eastwood & Howell 727* (CAS).

STATUS: Endemic, edaphically restricted, possibly threatened.

DISTRIBUTION: Garfield and Kane counties, Utah (Beaman 1957; Reveal 1970b).

*Viguiera soliceps* Barneby, Leaflet. W. Bot. 10: 316. 1966.

TYPE: Locally plentiful on gumbo-clay knolls and bluffs, lower Cottonwood Canyon near its confluence with Paria River, about 41 miles southeast of Cannonville, Kane Co., Utah, 4,500 feet, 12 Jun 1966, *Barneby 14435* (NY).

STATUS: Endemic, local on Tropic Shale formation, threatened (Ripley, E).

DISTRIBUTION: Cottonwood Canyon east to Last Chance Canyon, Kane Co., Utah (BRY, UTC).

*Xanthocephalum sarothrae* (Pursh) Shinners var. *pomariense* (Welsh) Welsh, comb. nov., based on *Gutierrezia sarothrae* (Pursh) Britton & Rusby var. *pomariensis* Welsh, Great Basin Nat. 30: 19. 1970.

TYPE: Sandy flat, base of sandstone cliffs, Frontier formation, mouth of Orchard Creek Draw, Dinosaur N.M., Uintah Co., Utah, 2 Oct 1969, *Welsh et al. 9471* (BRY).

STATUS: Endemic, rare and threatened.

DISTRIBUTION: Uintah Co., Utah (Welsh 1970b).

#### BERBERIDACEAE

*Berberis fendleri* A. Gray, Mem. Amer. Acad. Arts II, 4: 5. 1849.

STATUS: Rare, floristically restricted to seeps and hanging gardens.

DISTRIBUTION: San Juan (*Maguire 5904*, *Holmgren 13850* [UTC]; *Moore*

*204a*; *Welsh & Moore 3839* [BRY]; *Maguire 1937*); southern Colorado and New Mexico.

#### BETULACEAE

*Betula x utahensis* Britton, Bull. Torrey Bot. Club 31: 165. 1904.

TYPE: City Creek Canyon, Salt Lake Co., Utah, 18 Apr 1900, *Stokes s.n.* (NY).

STATUS: Rare; a putative hybrid between *B. occidentalis* Hook and *B. papyrifera* Marsh.

DISTRIBUTION: In Utah known only from the type locality; the hybrid is widespread north of Utah (Dugle 1966).

*Ostrya knowltonii* Coville, Gard. & Forest 7: 114. 1894.

STATUS: Rare, disjunct in hanging gardens, along seeps and on slickrock in sandstone canyons.

DISTRIBUTION: Grand (*Cottam 2145* and *556* [BRY, UTC]), Kane (*Welsh & Toft 11871* [BRY]), San Juan (*Welsh et al. 2939*, *2961* and *3721*; *Moore 336*; *Welsh 11893*; *Welsh & Moore 11783*; *Welsh & Atwood 11693* and *11711*; *Atwood 4103* [BRY]); northern Arizona, southwestern New Mexico and western Texas (Little 1953; Correll & Johnston 1970).

#### BORAGINACEAE

*Cryptantha barnebyi* I. M. Johnston, J. Arnold Arbor. 29: 240. 1948.

TYPE: Ca 30 miles south of Ouray on white shale knolls, Uintah Co., Utah, 17 Jun 1947, *Ripley & Barneby 8748* (GH).

STATUS: Endemic, rare, threatened (Ripley, T).

DISTRIBUTION: Uintah Co., Utah (Higgins 1971).

*Cryptantha breviflora* (Osterh.) Payson, Ann. Missouri Bot. Gard. 14: 318. 1927, based on *Orocarya breviflora* Osterh. ex Payson, Univ. Wyoming Publ. Sci. Bot. 1: 169. 1926.

TYPE: 6.5 miles north of Jensen, Uintah Co., Utah, 19 Jun 1925, *Osterhout 6414* (RM).

STATUS: Endemic, locally common in the Uinta Basin, neither threatened nor endangered (Ripley, E).



DISTRIBUTION: Daggett, Duchesne and Uintah counties, Utah (Higgins 1971).

*Cryptantha capitata* (Eastw.) I. M. Johnston, J. Arnold Arbor. 21: 66. 1941, based on *Oreocarya capitata* Eastw., Leaflet W. Bot. 1: 9. 1937.

STATUS: Rare and obscure.

DISTRIBUTION: Garfield, Kane, Washington, and Wayne counties, Utah (Higgins 1971), and in Coconino Co., Arizona.

*Cryptantha compacta* Higgins, Great Basin Nat. 28: 196. 1968.

TYPE: Ca 8 miles west of Desert Range Experiment Station headquarters, along Utah Highway 21, Millard Co., Utah, 18 Jun 1968, Higgins 1613 (BRY).

STATUS: Endemic, rare and local, threatened (Ripley, T).

DISTRIBUTION: Millard Co., Utah (Higgins 1971).

*Cryptantha elata* (Eastw.) Payson, Ann. Missouri Bot. Gard. 14: 285. 1927, based on *Oreocarya elata* Eastw., Bull. Torrey Bot. Club 30: 241. 1903.

STATUS: Rare and possibly threatened (Ripley, T).

DISTRIBUTION: Grand Co., Utah, and adjacent Mesa Co., Colorado (Higgins 1971).

*Cryptantha grahamii* I. M. Johnston, J. Arnold Arbor. 20: 391. 1939.

TYPE: On bench west of Green River, north of the mouth of Sand Wash, Uintah Co., Utah, 28 May 1933, Graham 7924 (GH).

STATUS: Endemic, locally abundant, on white shale outcrops along Willow Creek, possibly threatened (Ripley, E).

DISTRIBUTION: Uintah Co., Utah (Higgins 1971).

*Cryptantha johnstonii* Higgins, Great Basin Nat. 28: 195. 1968.

TYPE: 15 miles west of U.S. Highway 50-6 along the road from Woodside to Castle Dale, Emery Co., Utah, 25 May 1968, Higgins 1310 (BRY).

STATUS: Endemic, locally common, threatened (Ripley, E).

DISTRIBUTION: Emery Co., Utah (Higgins 1971).

*Cryptantha jonesiana* (Payson) Payson, Ann. Missouri Bot. Gard. 14: 323. 1927, based on *Oreocarya jonesiana* Payson, Univ. Wyoming Publ. Sci., Bot. 1: 168. 1926.

TYPE: San Rafael Swell, Emery Co., Utah, 15 May 1914, M. E. Jones s.n. (POM).

STATUS: Endemic, rare except in clay barrens in the San Rafael Swell, threatened (Ripley, E).

DISTRIBUTION: San Rafael Swell, Emery Co., Utah (Higgins 1971).

*Cryptantha longiflora* (A. Nels.) Payson, Ann. Missouri Bot. Gard. 14: 326. 1927, based on *Oreocarya loniflora* A. Nels., Erythea 7: 67. 1899.

STATUS: Rare and restricted in Grand Valley.

DISTRIBUTION: Grand Co., Utah, and west central Colorado (Higgins 1971).

*Cryptantha mensana* (M. E. Jones) Payson, Ann. Missouri Bot. Gard. 14: 333. 1927, based on *Krynitzkia mensana* M. E. Jones, Contr. W. Bot. 13: 14. 1910.

TYPE: Emery, Emery Co., Utah, 16 May 1894, M. E. Jones 5445p (POM).

STATUS: Rare and restricted to clay soils; threatened.

DISTRIBUTION: Carbon, Emery, and Grand counties, Utah (Higgins 1971).

*Cryptantha ochroleuca* Higgins, Great Basin Nat. 28: 197. 1968.

TYPE: On an outcrop 100 meters south of Red Canyon Campground, along Utah Highway 12, 21 Jul 1968, Higgins 1788 (BRY).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Garfield Co., Utah (Higgins 1971).

*Cryptantha osterhoutii* (Payson) Payson, Ann. Missouri Bot. Gard. 14: 329. 1927, based on *Oreocarya osterhoutii* Payson, Univ. Wyoming Publ. Sci., Bot. 1: 167. 1926.

STATUS: Rare or obscure.

DISTRIBUTION: Disjunct in Duchesne, San Juan, and Wayne counties, Utah, and in Mesa Co., Colorado (Higgins 1971).

*Cryptantha paradoxa* (A. Nels.) Payson, Ann. Missouri Bot. Gard. 14: 330.

1927, based on *Oreocarya paradoxa* A. Nels., Bot. Gaz. 56: 69. 1913.

STATUS: Rare, San Rafael Swell, threatened.

DISTRIBUTION: Emery Co., Utah, western Colorado and northwestern New Mexico (Higgins 1971).

*Cryptantha rollinsii* I. M. Johnston, J. Arnold Arbor. 20: 391. 1939.

TYPE: Shale hillside on Thorne's Ranch, near Willow Creek, ca 22 miles south of Ouray, Uintah Co., Utah, 16 Jun 1937, *Rollins 1715* (GH).

STATUS: Endemic, locally common, neither threatened nor endangered.

DISTRIBUTION: Uinta Basin, in both Duchesne and Uintah counties, and on the San Rafael Swell, Emery Co., Utah (Higgins 1971).

*Cryptantha semiglabra* Barneby. Leaflet. W. Bot. 3: 197. 1943.

STATUS: Rare and restricted, threatened (Ripley, T).

DISTRIBUTION: Vicinity of Fredonia, Coconino, and Mohave counties, Arizona, and in Washington Co., Utah (Higgins 1971).

*Cryptantha stricta* (Osterh.) Payson, Ann. Missouri Bot. Gard. 14: 264. 1927, based on *Oreocarya stricta* Osterh., Bull. Torrey Bot. Club 50: 217. 1923.

STATUS: Rare, but neither threatened nor endangered (Ripley, T).

DISTRIBUTION: Daggett, Summit, and Uintah counties, Utah; also in Moffat Co., Colorado, and Carbon Co., Wyoming (Higgins 1971).

*Cryptantha tenuis* (Eastw.) Payson, Ann. Missouri Bot. Gard. 14: 327. 1927, based on *Oreocarya tenuis* Eastw., Bull. Torrey Bot. Club 30: 244. 1903.

TYPE: Court House Wash, near Moab, Grand Co., Utah, 25 May 1892, *Eastwood s.n.* (CAS).

STATUS: Endemic, common and widespread.

DISTRIBUTION: Emery, Grand, San Juan, and eastern Wayne counties, Utah (Higgins 1971).

*Cryptantha wetherillii* (Eastw.) Payson, Ann. Missouri Bot. Gard. 14: 324. 1927, based on *Oreocarya wetherillii* Eastw., Bull. Torrey Bot. Club 30: 242. 1930.

TYPE: Court House Wash, near Moab, Grand Co., Utah, 25 May 1892, *Eastwood s.n.* (CAS).

STATUS: Endemic, common and widespread.

DISTRIBUTION: Carbon, Emery, Garfield, Grand, and Wayne counties, Utah (Higgins 1971).

*Hackelia patens* (Nutt.) I. M. Johnston var. *harrisonii* J. L. Gentry, Southw. Naturalist 19: 140. 1974.

TYPE: Pine Valley Mts., ca 1.5 miles up Forsyth Trail from Pine Valley, 30 May 1968, 7,300 feet, *Gentry 2002* (NY).

STATUS: Endemic, restricted but locally common.

DISTRIBUTION: Utah, Wasatch, and Washington counties, Utah (Gentry 1974).

*Mertensia arizonica* Greene, Pittonia 3: 197. 1897.

TYPE: "Arizona," without definite locality, but more likely from southern Utah, 1869, *Palmer s.n.* (US).

STATUS: Endemic (?), locally common; the var. *arizonica* is not known from Arizona in modern times.

DISTRIBUTION: Beaver, Garfield, Iron, Piute, and Washington counties, Utah (Higgins 1972a).

*Mertensia viridis* A. Nels. var. *cana* (Rydb.) L. O. Williams, Ann. Missouri Bot. Gard. 24: 115. 1937, based on *M. cana* Rydb., Bull. Torrey Bot. Club 36: 698. 1909.

STATUS: Rare and restricted, possibly threatened.

DISTRIBUTION: Bald Mtn., Summit Co., Utah (*Maguire 14699*; *Weber 3894* [UTC]) and north central Colorado (Williams 1937; Higgins 1972a).

*Mertensia viridis* A. Nels. var. *dilatata* (A. Nels.) L. O. Williams, Ann. Missouri Bot. Gard. 24: 113. 1937, based on *M. coriacea* var. *dilatata* A. Nels., Bull. Torrey Bot. Club 29: 403. 1902.

STATUS: Rare, known from a single collection from the Uinta Mts.

DISTRIBUTION: Daggett Co., Utah (*Williams 599* [RM]); southeastern Wyoming and adjacent Colorado (Williams 1937; Higgins 1972a).

## BRASSICACEAE

*Arabis demissa* Greene var. *languida* Rollins, *Rhodora* 43: 388. 1941.

STATUS: Rare and possibly threatened (Ripley, T).

DISTRIBUTION: Daggett Co., Utah (Rollins 1941); Albany and Sweetwater counties, Wyoming.

*Arabis demissa* Greene var. *russeola* Rollins, *Rhodora* 43: 387. 1941.

TYPE: Ca 18 miles north of Vernal, Uintah Co., Utah, Jun 1937, *Rollins 1757* (GH).

STATUS: Rare and threatened (Ripley, T).

DISTRIBUTION: Daggett and Uintah counties, Utah, and Albany Co., Wyoming (Rollins 1941).

*Caulanthus divaricatus* Rollins, *Contr. Gray Herb.* 201: 8. 1971.

TYPE: Ca 75 miles west of Blanding and 10 miles east of Hite, San Juan Co., Utah, 16 May 1961, *Cronquist 9033* (NY).

STATUS: Endemic, rare though widespread, neither threatened nor endangered.

DISTRIBUTION: Carbon, Emery, Garfield, Grand, San Juan, and Wayne counties, Utah (BRY, UTC).

*Draba maguirei* C. L. Hitchc., *Univ. Wash. Publ. Biol.* 11: 71. 1941.

TYPE: Rocky soil on east slope of Mt. Naomi, Bear River Range, Cache Co., Utah, 9,600 feet, *Maguire et al. 14161* (WTU).

STATUS: Endemic, restricted and possibly threatened.

DISTRIBUTION: Cache Co., Utah (Hitchcock 1941).

*Draba maguirei* C. L. Hitchc. var. *burkei* C. L. Hitchc., *Univ. Wash. Publ. Biol.* 11: 72. 1941.

TYPE: Cottonwood Canyon, Wells-ville Mts., Box Elder Co., Utah, 25 May 1932, *Burke 2968* (UT).

STATUS: Endemic, restricted and threatened.

DISTRIBUTION: Box Elder (Hitchcock 1941) and Weber (*Clark 2332* [BRY, WSCO]) counties, Utah.

*Draba pectinipila* Rollins, *Rhodora* 55: 231. 1953.

STATUS: Endangered or possibly extirpated.

DISTRIBUTION: Flaming Gorge, Daggett Co., Utah, and adjacent Sweetwater Co., Wyoming (Rollins 1953).

*Draba sobolifera* Rydb., *Bull. Torrey Bot. Club* 30: 251. 1903.

TYPE: Marysvale, Piute Co., Utah, above timber line, 1894, *M. E. Jones 5936* (US).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Garfield and Piute counties, Utah (Hitchcock 1941).

*Draba subalpina* Goodman & Hitchc., *Ann. Missouri Bot. Gard.* 19: 77. 1932.

TYPE: Cedar Breaks, Iron Co., Utah, *Goodman & Hitchcock 1622* (MO).

STATUS: Endemic, infrequent and possibly threatened (Ripley, T).

DISTRIBUTION: Garfield, Iron and Kane counties, Utah (BRY, UTC).

*Draba zionensis* C. L. Hitchc., *Univ. Wash. Publ. Biol.* 11: 49. 1941.

TYPE: Zion Canyon, Washington Co., Utah, 7 May 1923, *M. E. Jones s.n.* (POM).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Juab (Cottam 7201 UT) and Washington counties, Utah (Hitchcock 1941).

*Glaucocarpum suffrutescens* (Rollins) Rollins, *Madroño* 4: 233. 1938, based on *Thelypodium suffrutescens* Rollins in *Graham, Ann. Carnegie Mus.* 26: 244. 1937.

TYPE: West of Willow Creek, on Thorne's Ranch, eastern slope of Big Pack Mtn., Uintah Co., Utah, 23 May 1935, *Graham 8950* (GH).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Uintah Co., Utah; known only from the type locality (Rollins 1938).

*Lepidium barnebyanum* Reveal, *Great Basin Nat.* 27: 178. 1967, based on *L. montanum* Nutt. ex Torr. & Gray ssp. *demissum* C. L. Hitchc., *Madroño* 10: 157. 1950.

TYPE: Indian Creek Canyon, on white shale ridge tops, ca 4 miles southwest of Duchesne, Duchesne Co., Utah,

15 Jun 1947, *Ripley & Barneby 8699* (WTU).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Duchesne Co., Utah; known only from the type locality (Reveal 1967).

*Lesquerella garrettii* Payson, Ann. Missouri Bot. Gard. 8: 213. 1921.

TYPE: Big Cottonwood Canyon, Salt Lake Co., Utah, 28 Jun 1908, *Garrett 1344* (MO).

STATUS: Endemic, rare and possibly threatened (Ripley, T).

DISTRIBUTION: Salt Lake, Utah and Wasatch counties, Utah (Rollins & Shaw 1973).

*Lesquerella hemiphysaria* Maguire, Amer. Midl. Naturalist 27: 456. 1942.

TYPE: Frequent, limestone breaks, south side of Middle Fork Park, Wasatch Plateau, 10 Aug 1940, 10,800 feet, *Maguire 20053* (UTC).

STATUS: Endemic, locally common but restricted.

DISTRIBUTION: Carbon, Emery, Sanpete, and Utah counties, Utah (Rollins & Shaw 1973).

*Lesquerella rubicundula* Rollins, Contr. Dudley Herb. 3: 178. 1941.

TYPE: Red Canyon, Garfield Co., Utah, 2,300 meters, 6 Jul 1912, *Eggleston 8198* (NA, the type now transferred to US).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Garfield, Kane, and Piute counties, Utah (Reveal 1970a; Rollins & Shaw 1973).

*Lesquerella tumulosa* (Barneby) Reveal, Great Basin Nat. 30: 97. 1970, based on *L. hitchcockii* Munz ssp. *tumulosa* Barneby, Leaf. W. Bot. 10: 313. 1966.

TYPE: Bare white shale knolls, 6.5 miles southeast of Cannonville, Kane Co., Utah, 12 Jun 1966, *Barneby 14424* (NY).

STATUS: Endemic, rare and endangered.

DISTRIBUTION: Kane Co., Utah; known only from the type locality (Reveal 1970a).

*Lesquerella utahensis* Rydb., Bull. Torrey Bot. Club 30: 252. 1903.

TYPE: American Fork Canyon, Utah Co., Utah, 31 Jul 1880, *M. E. Jones 1354* (NY).

STATUS: Endemic, rare to locally common.

DISTRIBUTION: Davis, Duchesne, Juab, Salt Lake, Summit, Tooele, Uintah, Utah, Wasatch and Weber counties, Utah (Rollins & Shaw 1973).

*Parrya rydbergii* Botsch., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 178. 1955, based on *P. platycarpa* Rydb., Bull. Torrey Bot. Club 39: 326. 1912, not Hook. f. & Thomas.

TYPE: Uinta Mts., Aug 1869, *Watson 54* (NY).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Crest of the Uinta Mts., Duchesne (*Murdock 54* [BRY]) and Daggett-Uintah counties (*Waite 252* and *297* [BRY]).

*Physaria grahamii* Morton in Graham, Ann. Carnegie Mus. 26: 220. 1937.

TYPE: Chandler Canyon, Uintah Co., Utah, 3 Aug 1935, 6,000 feet, *Graham 9976* (US).

STATUS: Endemic, rare and possibly extinct (Ripley, PoEx).

DISTRIBUTION: Uintah Co., Utah; known only from the type collection as recent efforts to recollect this species have failed (Waite 1973).

*Thelypodium integrifolium* (Nutt.) Endl. var. *complanatum* (Al-Shehbaz) Welsh & Reveal, stat. nov., based on *T. integrifolium* ssp. *complanatum* Al-Shehbaz, Contr. Gray Herb. 204: 105. 1973.

STATUS: Local and infrequent.

DISTRIBUTION: Box Elder Co., Utah (UTC; Al-Shehbaz 1973); found to the west of Utah.

*Thelypodium rollinsii* Al-Shehbaz, Contr. Gray Herb. 204: 97. 1973.

TYPE: On alkaline soil in the vicinity of the Sevier River, ca 12 miles north of Scipio along U.S. Highway 91, 29 Jul 1969, *Al-Shehbaz & Al-Shehbaz 6913* (GH).

STATUS: Endemic, locally common, neither threatened nor endangered.

DISTRIBUTION: Carbon, Juab, Millard, Piute, Sanpete, and Sevier counties, Utah (Al-Shehbaz 1973).



*Thelypodium sagittatum* (Nutt.) Endl. ex Walp. var. *ovalifolium* (Rydb.) Welsh & Reveal, stat. & comb. nov., based on *T. ovalifolium* Rydb., Bull. Torrey Bot. Club 30: 253. 1903.

TYPE: Panguitch Lake, Garfield Co., Utah, 7 Sep 1894, *M. E. Jones 6015c* (US).

STATUS: Rare and restricted, possibly threatened.

DISTRIBUTION: Garfield and Iron counties, Utah, and White Pine Co., Nevada (Al-Shehbaz 1973).

#### CACTACEAE

*Echinocereus engelmannii* (Parry) Lemaire var. *purpureus* L. Benson, Cact. Succ. J. (Los Angeles) 41: 127. 1969.

TYPE: Mojavean desert north of St. George, Washington Co., Utah, 5 May 1949, 2,900 feet, *Benson 13637* (POM).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Washington Co., Utah; known only from the vicinity of the type locality (Benson 1969b).

*Ferocactus acanthodes* (Lemaire) Britton & Rose, Publ. Carnegie Inst. Wash. 248 (3): 129. 1922, based on *Echinocactus acanthodes* Lemaire, Cact. Gen. Nov. Sp. 106. 1839.

STATUS: Restricted and endangered.

DISTRIBUTION: Washington Co., Utah (BRY); southern Nevada, Arizona and California (Benson 1969b).

*Mammillaria tetrancistra* Engelm., Amer. J. Sci. Arts II, 14: 337. 1852.

STATUS: Restricted and rare, possibly threatened.

DISTRIBUTION: Washington Co., Utah; southern Nevada, California, and Arizona (Benson 1969b).

*Opuntia pulchella* Engelm., Trans. Acad. Sci. St. Louis 2: 201. 1863.

STATUS: Rare, restricted and possibly threatened.

DISTRIBUTION: Millard Co., Utah (BRY); Nevada and Arizona (Benson 1957). This species includes those entities included in *Micropuntia* by Daston (1946).

*Opuntia whipplei* Engelm. & Bigelow var. *multigeniculata* L. Benson, Cact. Ariz. ed. 3, 38. 1969.

STATUS: Restricted and rare.

DISTRIBUTION: Washington Co., Utah, and adjacent Nevada and Arizona (Benson 1969b).

*Pediocactus sileri* (Engelm.) L. Benson, Cact. Succ. J. (Los Angeles) 33: 53. 1961, based on *Echinocactus sileri* Engelm. ex Coulter, Contr. U.S. Natl. Herb. 3: 376. 1896.

TYPE: Cottonwood Springs and Pipe Springs, supposedly from southern Utah but more likely from Arizona, 1883, *Siler s.n.* (MO).

STATUS: Arizona Strip endemic, rare, local and endangered (Ripley, E).

DISTRIBUTION: Washington Co., Utah (*Welsh 12712* [BRY]), and northern Arizona (BRY; Benson 1969b).

*Sclerocactus glaucus* (K. Schum.) L. Benson, Cact. Succ. J. (Los Angeles) 38: 53. 1966, based on *Echinocactus glaucus* K. Schum., Gessamtb. Kakt. 438. 1898.

STATUS: Rare, possibly extirpated from Utah (Ripley, E).

DISTRIBUTION: Duchesne and Uintah counties, Utah, and Delta Co., Colorado (Benson 1966).

*Sclerocactus pubispinus* (Engelm.) L. Benson, Cact. Succ. J. (Los Angeles) 38: 103. 1966, based on *Echinocactus pubispinus* Engelm., Trans. Acad. Sci. St. Louis 2: 199. 1863.

STATUS: Rare and threatened (Ripley, T).

DISTRIBUTION: Box Elder, Beaver, and Sevier counties, Utah, and Elko Co., Nevada (Benson 1966).

*Sclerocactus pubispinus* (Engelm.) L. Benson var. *sileri* L. Benson, Cact. Ariz. ed. 3, 23. 1969.

TYPE: Southern Utah, 1888, *Siler s.n.* (PH).

STATUS: Rare and now extirpated from Utah.

DISTRIBUTION: Kane Co., Utah, and Coconino Co., Arizona (Benson 1969b).

*Sclerocactus whipplei* (Engelm. & Bigelow) Britton & Rose var. *spinosior* (Engelm.) Boiss. in Boiss. & Davidon, Colorado Cacti 51. 1940, based on *Echinocactus whipplei* var. *spinosior* Engelm., Trans. Acad. Sci. St. Louis 2: 199. 1863.

TYPE: South of the Great Salt Lake Desert, 19 Jul 1859, *H. Engelmann s.n.* (MO).

STATUS: Rare to locally common, neither threatened nor endangered. (Ripley, T).<sup>4</sup>

DISTRIBUTION: Widespread in much of the southern two-thirds of Utah.

*Sclerocactus wrightiae* L. Benson, Cact. Succ. J. (Los Angeles) 38: 55. 1966.

TYPE: Near San Rafael Ridge, Emery Co., Utah, 5,000 feet, *Benson & Benson 16595* (POM).

STATUS: Endemic, restricted and rare, endangered (Ripley, T).

DISTRIBUTION: Emery and Wayne counties, Utah.

#### CAPPARIDACEAE

*Cleomella palmerana* M. E. Jones, Zoe 2: 236. 1891.

TYPE: Green River, Emery Co., Utah, 9 May 1890, *M. E. Jones s.n.* (POM).

STATUS: Endemic to the Navajo Basin of Utah and Colorado, edaphically restricted but neither threatened nor endangered.

DISTRIBUTION: Duchesne, Emery, Garfield, Grand, Kane, and Wayne counties, Utah (BRY), and Colorado (Harrington 1954).

*Cleomella placasperma* S. Wats. in King, Rep. Geol. Explor. 40th Parallel 5: 33. 1871.

STATUS: Restricted and rare, possibly threatened.

DISTRIBUTION: Iron Co., Utah (BRY), and Nevada (Shaw 1970).

#### CARYOPHYLLACEAE

*Arenaria kingii* (S. Wats.) M. E. Jones var. *plateauensis* (Maguire) Reveal, stat. nov., based on *A. kingii* ssp. *plateauensis* Maguire, Bull. Torrey Bot. Club 74: 54. 1947.

TYPE: Cedar Breaks Rim, Iron Co., Utah, 23 Jun 1940, 10,400 feet, *Maguire 19024* (UTC).

STATUS: Endemic, locally common, neither threatened nor endangered.

DISTRIBUTION: Beaver, Garfield,

Kane, Iron, and Wayne counties, Utah (Maguire 1947b).

*Silene petersonii* Maguire, Madroño 6: 24. 1941.

TYPE: Skyline Drive, 1 mile above Baldy Ranger Station, Sanpete Co., Utah, 8 Aug 1940, 10,900 feet, *Maguire 20000* (UTC).

STATUS: Endemic, locally common but possibly threatened (Ripley, T).

DISTRIBUTION: Iron, Garfield and Sanpete counties, Utah (Maguire 1941; Hitchcock & Maguire 1951).

*Silene petersonii* Maguire var. *minor* Hitchc. & Maguire, Univ. Wash. Publ. Biol. 13: 38. 1947.

TYPE: Red Canyon, 5 miles east of U.S. Highway 89, Garfield Co., Utah, 16 Jul 1940, *Maguire 19550* (UTC).

STATUS: Endemic, rare and threatened.

DISTRIBUTION: Garfield Co., Utah; known only from the type area.

#### CHENOPODIACEAE

*Atriplex bonnevillensis* C. A. Hanson, Stud. Syst. Bot. 1: 2. 1962.

TYPE: Dry lake bed 1.5 miles north-east of Desert Range Experiment Station headquarters, Millard Co., 12 Jul 1961, *Hanson 354* (BRY).

STATUS: Restricted, though locally abundant, possibly threatened.

DISTRIBUTION: Juab and Millard counties, Utah (BRY), and Nevada (Hanson 1962b).

*Atriplex garrettii* Rydb., Bull. Torrey Bot. Club 39: 312. 1912.

TYPE: Vicinity of Moab, Grand Co., Utah, 1 Jul 1911, *Rydberg & Garrett 8465* (NY).

STATUS: Colorado River drainage, endemic, restricted but locally common.

DISTRIBUTION: Garfield, Grand, Kane, and San Juan counties, Utah (BRY), and reported from Colorado (Harrington 1954).

*Atriplex obovata* Moq., Chenop. Enum. 61. 1840.

STATUS: Restricted, rare and possibly threatened.

DISTRIBUTION: San Juan Co., Utah;

<sup>4</sup>Cited by Ripley (1975) as *S. spinosior*, without author; we can find no indication that such a combination has been made. According to Benson (1966), this name is a synonym of *S. pubispinus* (Engelm.) L. Benson var. *pubispinus*.

rather common in Arizona, New Mexico and Mexico (Hanson 1692b).

*Atriplex welshii* C. A. Hanson, Stud. Syst. Bot. 1: 1. 1962.

TYPE: 4 miles south of Cisco along Utah Highway 128, Grand Co., Utah, 5 Jul 1961, Hanson 322 (BRY).

STATUS: Endemic, restricted and possibly threatened.

DISTRIBUTION: Carbon and Grand counties, Utah (BRY).

#### CUCURBITACEAE

*Cucurbita foetidissima* H.B.K., Nov. Gen. & Sp. 2: 123. 1817.

STATUS: Restricted, but locally common and often weedy, neither threatened nor endangered.

DISTRIBUTION: San Juan (Welsh et al. 2992 [BRY]), and Washington (BRY) counties, Utah, and widespread elsewhere.

#### CUSCUTACEAE

*Cuscuta warneri* Yuncker, Brittonia 12: 38. 1960.

TYPE: Vicinity of Powell, 15 miles west of Fillmore, Millard Co., Utah, 10 Sep 1957, on *Phyla cuneifolia*, Warner s.n. (UTC).

STATUS: Endemic, possibly extinct (Ripley, PoEx).

DISTRIBUTION: Millard Co., Utah; known only from the type collection (Yuncker 1960, 1965).

#### CYPERACEAE

*Carex curatorum* Stacey, Leaf. W. Bot. 2: 213. 1937.

STATUS: Rare and restricted to specialized habitats; threatened.

DISTRIBUTION: San Juan Co., Utah (Welsh 12425 [BRY]), and in Grand Canyon, Arizona (Stacey 1937).

*Cladium californicum* (S. Wats.) O'Neill in Tidestr. & Kittell, Fl. Arizona & N. Mex. 773. 1941, based on *C. mariscus* var. *californicum* S. Wats., Bot. Calif. 2: 224. 1880.

STATUS: Rare, restricted and endangered.

DISTRIBUTION: Kane (Welsh & Atwood 11709; Welsh & Moore 11780; Welsh & Toft 11870 [BRY]) and San

Juan (Welsh & Toft 11874 [BRY]), and from northern Arizona, southern Nevada, and southern California to Central America (Kearney & Peebles 1951).

#### ELAEAGNACEAE

*Elaeagnus commutata* Bernh., Allg. Thüring. Gartenzeitung 2: 137. 1843.

STATUS: Restricted, local and possibly extirpated from Utah.

DISTRIBUTION: Daggett (Julander J56 [BRY]) and Summit (Welsh & Moore 6724 [BRY]) counties, Utah; widespread northward to Alaska (Welsh 1974b).

#### ERICACEAE

*Arctostaphylos pringlei* Parry, Bull. Calif. Acad. Sci. 2: 494. 1887.

STATUS: Local, rare, possibly threatened.

DISTRIBUTION: Washington Co., Utah (Higgins 665 and 3414 [BRY]; Higgins 1972b).

#### EUPHORBACEAE

*Euphorbia nepadrenia* Barneby, Leaf. W. Bot. 10: 314. 1966.

TYPE: Lower Cottonwood Canyon, about 41 miles southeast of Cannonville, Kane Co., Utah, 12 Jun 1966, 4,500 feet, Barneby 14434 (NY).

STATUS: Endemic, restricted edaphically, threatened (Ripley, T).

DISTRIBUTION: Emery, Kane, and Wayne counties, Utah (BRY).

#### FABACEAE

*Astragalus adanus* A. Nels., Bot. Gaz. 53: 222. 1912.

STATUS: Rare and possibly extirpated from Utah.

DISTRIBUTION: Juab Co., Utah; widespread in Idaho (Barneby 1964).

*Astragalus adsurgens* Pallas ssp. *robustior* (Hook.) Welsh, Iowa State Coll. J. Sci. 37: 357. 1963, based on *A. adsurgens* var. *robustior* Hook., Fl. Bo-reali-Amer. 1: 149. 1831.

STATUS: Restricted, rare and possibly threatened.

DISTRIBUTION: Daggett Co., Utah (Hanson 283a [BRY]); widespread east of the continental divide northward to Alaska (Welsh 1974b).

*Astragalus alpinus* L., Sp. Pl. 760. 1753.  
STATUS: Rare and local, possibly threatened.

DISTRIBUTION: Grand (*Holmgren et al.* 2321 [BRY, NY, UTC]) and Salt Lake (UT, without collector) counties; widespread in North America and Eurasia (Welsh 1974b).

*Astragalus ampullarius* S. Wats., Amer. Naturalist 7: 300. 1873.

TYPE: Kanab, Kane Co., Utah, 1872, *Thompson s.n.* (GH).

STATUS: Arizona strip endemic, edaphically restricted and though locally common, probably threatened (Ripley, T).

DISTRIBUTION: Kane and Washington counties, Utah, and northernmost Coconino and Mohave counties, Arizona (BRY; Barneby 1964).

*Astragalus asclepiadoides* M. E. Jones, Zoe 2: 238. 1891.

TYPE: Cisco, Grand Co., Utah, 21 Jun 1889, *M. E. Jones s.n.* (POM)

STATUS: Edaphically restricted although locally common, neither threatened nor endangered.

DISTRIBUTION: Carbon, Duchesne, Emery, Garfield, Grand, Sanpete, Sevier (UT), Uintah, and Wayne counties, Utah (BRY, UTC), and western Colorado (Barneby 1964).

*Astragalus australis* Lam., Fl. Franç. 2: 637. 1778.

STATUS: Possibly extirpated from Utah.

DISTRIBUTION: Piute (?) Co., Utah (Barneby 1964).

*Astragalus barnebyi* Welsh & Atwood, nom. nov., based on *A. desperatus* M. E. Jones var. *conspicua* Barneby, Leafl. W. Bot. 5: 87. 1948.

STATUS: Rare, restricted and threatened (Ripley, T).

DISTRIBUTION: Garfield Co., Utah (BRY), and in Navajo and Coconino counties, Arizona (Barneby 1964).

This remarkable milkvetch is adequately distinct on account of size of flower and parts, and because of stature to segregate it from its near and mirror-imaged congener *A. desperatus*. The name change honors the author of the monumental "Atlas of North American *Astragalus*,"

Rupert C. Barneby of the New York Botanical Garden.

*Astragalus bodinii* Sheldon, Minnesota Bot. Stud. 1: 122. 1894.

STATUS: Rare and endangered.

DISTRIBUTION: Wayne Co., Utah (BRY); widespread in Alaska, Canada, Colorado, Wyoming, and one record from Nebraska (Barneby 1964).

*Astragalus brandegei* Porter in Porter & Coulter, Syn. Fl. Colo. 24. 1872.

STATUS: Rare and obscure, probably threatened.

DISTRIBUTION: Carbon, Emery, Garfield, Piute, and Wayne counties, Utah (BRY); also in Colorado, New Mexico, and Arizona (Barneby 1964).

*Astragalus bryantii* Barneby, Proc. Calif. Acad. Sci. IV, 25: 156. 1944.

STATUS: Probably extirpated from Utah.

DISTRIBUTION: Kane Co., Utah, in Glen Canyon, the collection area inundated by Lake Powell; also in northern Arizona (Barneby 1964).

*Astragalus callithrix* Barneby, Leafl. W. Bot. 3: 102. 1942.

STATUS: Rare and restricted, possibly threatened (Ripley, T).

DISTRIBUTION: Millard Co., Utah (BRY); otherwise known only from two locations in Nye Co., Nevada.

*Astragalus castaneiformis* S. Wats. var. *consobrinus* Barneby, Amer. Midl. Naturalist 41: 496. 1949.

TYPE: Southeast of Bicknell, Wayne Co., Utah, 10 Jun 1947, 7,600 feet, *Ripley & Barneby 8605* (CAS).

STATUS: Endemic, rare and obscure, possibly threatened.

DISTRIBUTION: Garfield, Piute, Sevier, and Wayne counties, Utah (Barneby 1964).

*Astragalus chloödes* Barneby, Leafl. W. Bot. 5: 6. 1947.

TYPE: Ca 6 miles southeast of Jensen, Uintah Co., Utah, 7 Jun 1946, *Ripley & Barneby 7797* (CAS).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Uintah Co., Utah (BRY, UTC).

*Astragalus coltonii* M. E. Jones, Zoe 2: 237. 1891.



TYPE: Canyons of the Coal Range east of Castle Gate, 27 Jun 1889, *M. E. Jones s.n.* (POM).

STATUS: Endemic, locally abundant, neither threatened nor endangered. Our plant is var. *coltonii*.

DISTRIBUTION: Carbon, Emery, Garfield, Kane, Sevier, and Wayne counties, Utah (BRY, UT, UTC).

*Astragalus convallarius* Greene var. *finitimus* Barneby, Leaflet. W. Bot. 7: 192. 1954.

TYPE: Ca 3 miles south of Enterprise, Washington Co., Utah, 11 Jun 1942, *Ripley & Barneby 4767* (CAS).

STATUS: Rare and local, threatened (Ripley, T).

DISTRIBUTION: Washington Co., Utah, and adjacent Nevada (Barneby 1964).

*Astragalus cottamii* Welsh, *Rhodora* 72: 189. 1970.

TYPE: Ca 4 miles east of Clay Hills divide, San Juan Co., Utah, 1 May 1966, *Welsh 5207* (BRY).

STATUS: Restricted and local, possibly threatened (Ripley, T).

DISTRIBUTION: San Juan Co., Utah, and adjacent Monument Valley, Arizona (BRY).

*Astragalus cronquistii* Barneby, Mem. New York Bot. Gard. 13: 258. 1964.

TYPE: In desert along west side of Comb Wash, 9 miles west of Bluff, San Juan Co., Utah, 27 May 1961, *Cronquist 9123* (NY).

STATUS: Endemic and very restricted, endangered (Ripley, E).

DISTRIBUTION: San Juan Co., Utah (BRY, UTC).

*Astragalus cymboides* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 650. 1895.

TYPE: Huntington, Emery Co., Utah, 16 Jun 1894, at 5,000 feet, *M. E. Jones 5464j* (POM).

STATUS: Endemic, locally common to abundant, neither threatened nor endangered.

DISTRIBUTION: Carbon, Emery, Grand, and San Juan counties, Utah (BRY).

*Astragalus deserticus* Barneby, Mem. New York Bot. Gard. 13: 634. 1964.

TYPE: Common on slopes near Indianola, 17 Jun 1909, *Tidestrom 2249* (GH).

STATUS: Endemic and possibly extinct (Ripley, PrEx).

DISTRIBUTION: Sanpete Co., Utah (Barneby 1964).

*Astragalus detritalis* M. E. Jones, Contr. W. Bot. 13: 9. 1910.

TYPE: Ca 4 miles above Theodore [Duchesne] on the Colton road, Duchesne Co., Utah, 11 May 1908, *M. E. Jones s.n.* (POM).

STATUS: Uinta Basin endemic, local and possibly endangered (Ripley, E).

DISTRIBUTION: Duchesne and Uintah counties, Utah, and Rio Blanco Co., Colorado (BRY).

*Astragalus diversifolius* A. Gray, Proc. Amer. Acad. Arts 6: 230. 1864.

STATUS: Rare, disjunct and possibly extirpated from Utah.

DISTRIBUTION: Juab and Tooele counties; also in southern Idaho where rare (Barneby 1964).

*Astragalus duchesnensis* M. E. Jones, Contr. W. Bot. 13: 9. 1910.

TYPE: Ca 13 miles below Theodore [Duchesne] toward Chepeta Well, Duchesne Co., Utah, 23 May 1908, *M. E. Jones s.n.* (POM).

STATUS: Endemic, restricted and threatened (Ripley, T).

DISTRIBUTION: Duchesne and Uintah counties, Utah (BRY).

*Astragalus castwoodae* M. E. Jones, Zoe 4: 368. 1894, based on *A. preussii* var. *sulcatus* M. E. Jones, Zoe 4: 37. 1893.

TYPE: Westwater, Grand Co., Utah (incorrectly given as "Colorado"), 6 May 1891, *M. E. Jones s.n.* (POM).

STATUS: Rare, disjunct and possibly threatened.

DISTRIBUTION: Emery, Grand, and San Juan counties, Utah; also in west central Colorado (Barneby 1964).

*Astragalus emoryanus* (Rydb.) Cory, *Rhodora* 38: 406. 1936, based on *Hamosa emoryana* Rydb., Bull. Torrey Bot. Club 54: 237. 1927.

STATUS: Rare and endangered.

DISTRIBUTION: Kane (Atwood 4629 [BRY]) Co., Utah; Arizona, New Mexico, Texas, and Mexico (Barneby 1964).

*Astragalus ensiformis* M. E. Jones, Rev. Astrag. 226. 1923.

- STATUS: Rare and local; threatened (Ripley, T).
- DISTRIBUTION: Washington Co., Utah, and Mohave Co., Arizona (BRY).
- Astragalus eucosmus* B. L. Robinson, *Rhodora* 10: 33. 1908.
- STATUS: Possibly extirpated.
- DISTRIBUTION: Summit Co., Utah; widespread in northern North America (Barneby 1964; Welsh 1974b).
- Astragalus eurekensis* M. E. Jones, *Contr. W. Bot.* 8: 12. 1898.
- TYPE: Eureka, Juab Co., Utah, 1891, *M. E. Jones s.n.* (POM).
- STATUS: Endemic, locally common to abundant, neither threatened nor endangered.
- DISTRIBUTION: Juab, Iron, Millard, Sanpete, Tooele, and Utah counties, Utah (BRY; Barneby 1964).
- Astragalus flavus* Nutt. ex Torr. & Gray var. *argillosus* (M. E. Jones) Barneby, *Mem. New York Bot. Gard.* 13: 401. 1964, based on *A. argillosus* M. E. Jones, *Zoe* 2: 241. 1891.
- TYPE: Green River, Emery Co., Utah, 7 May 1890, *M. E. Jones s.n.* (POM).
- STATUS: Endemic, restricted edaphically but locally common, neither threatened nor endangered.
- DISTRIBUTION: Emery, Garfield, Grand, and Wayne counties, Utah (BRY).
- Astragalus gilviflorus* Sheldon, *Minnesota Bot. Stud.* 1: 21. 1894, based on *A. triphyllus* Pursh, *Fl. Amer.* Sept. 2: 740. 1814, not Pallas.
- STATUS: Rare or possibly extirpated from Utah.
- DISTRIBUTION: Summit Co., Utah (UTC); widespread east of the continental divide (Barneby 1964).
- Astragalus hallii* A. Gray var. *fallax* (S. Wats.) Barneby, *Leaflet W. Bot.* 9: 91. 1960, based on *A. fallax* S. Wats., *Proc. Amer. Acad. Arts* 20: 362. 1885.
- STATUS: Rare and local, possibly threatened.
- DISTRIBUTION: Garfield and Kane counties, Utah (BRY).
- Astragalus hamiltonii* C. L. Porter, *Rhodora* 54: 159. 1952.
- TYPE: On the Wasatch formation 5 miles south of Vernal, Uintah Co., Utah, 24 May 1950, *Hamilton & Beath s.n.* (RM).
- STATUS: Endemic, rare and local, endangered (Ripley, E).
- DISTRIBUTION: Uintah Co., Utah (BRY).
- Astragalus harrisonii* Barneby, *Mem. New York Bot. Gard.* 13: 271. 1964.
- TYPE: Wash below the Natural Bridge, near Fruita, Wayne Co., Utah, 8 Jun 1961, *Barneby 13131* (CAS).
- STATUS: Endemic, rare and endangered (Ripley, E).
- DISTRIBUTION: Wayne Co., Utah; known only from the type area (BRY).
- Astragalus iodanthus* S. Wats. in King, *Rep. Geol. Explor. 40th Parallel* 5: 70. 1871.
- STATUS: Rare and possibly extirpated from Utah.
- DISTRIBUTION: Tooele Co., Utah; widespread to the west of Utah (Barneby 1964).
- Astragalus iselyi* Welsh, *Great Basin Nat.* 34: 305. 1974.
- TYPE: Brumley Bridge, ca 1.5 miles north of Pack Creek Ranch, San Juan Co., Utah, 5 May 1971, *Welsh 10970* (BRY).
- STATUS: Endemic, edaphically restricted, endangered.
- DISTRIBUTION: Grand and San Juan counties, Utah (BRY; Welsh 1974a).
- Astragalus jejunus* S. Wats. in King, *Rep. Geol. Explor. 40th Parallel* 5: 73. 1871.
- STATUS: Rare and restricted, possibly threatened.
- DISTRIBUTION: Rich Co., Utah (Barneby 1964); southwestern Wyoming and in an isolated location in White Pine Co., Nevada.
- Astragalus kentrophyta* A. Gray var. *coloradoensis* M. E. Jones, *Contr. W. Bot.* 10: 63. 1902.
- STATUS: Navajo Basin endemic; rare to locally common but probably threatened.
- DISTRIBUTION: Garfield, Kane, San Juan, and Wayne counties, Utah (BRY), and adjacent northern Arizona (Barneby 1964).
- Astragalus lanccarius* A. Gray, *Proc. Amer. Acad. Arts* 13: 370. 1878.
- STATUS: Rare and local in generalized

habitats; possibly threatened (Ripley, T).

DISTRIBUTION: Kane (BRY) and Washington counties, Utah and in Coconino and Mohave counties, Arizona (BRY; Barneby 1964).

*Astragalus lentiginosus* Dougl. ex Hook. var. *chartaceus* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 673. 1895.

TYPE: Ephraim, Sanpete Co., Utah, 13 Jul 1894, 6,000 feet, M. E. Jones 5627m (POM).

STATUS: Rare and local, possibly threatened (Ripley, PoEx, Tax?).<sup>5</sup>

DISTRIBUTION: Daggett, Juab, Sanpete, Sevier, Summit, and Tooele counties, Utah, and widespread from Colorado, Wyoming, Idaho, Oregon, California, and Nevada (Schoener 1975).

*Astragalus lentiginosus* Dougl. ex Hook. var. *fremontii* (Gray ex Torr.) S. Wats. in King, Rep. Geol. Explor. 40th Parallel 5: 66. 1871, based on *A. fremontii* Gray ex Torr. in Whipple, Explor. & Surv. Railroad Route from Mississippi River to Pacific Ocean 4(5): 80. 1857.

STATUS: Rare and ephemeral, possibly threatened.

DISTRIBUTION: Washington Co., Utah (BRY; Schoener 1974); widespread in southern Nevada and adjacent California (Barneby 1964).

*Astragalus lentiginosus* Dougl. ex Hook. var. *scorpionis* M. E. Jones, Rev. Astrag. 124. 1923.

STATUS: Rare and local; possibly threatened.

DISTRIBUTION: Juab Co., Utah (Schoener 1975), and Nevada (Barneby 1964).

*Astragalus lentiginosus* Dougl. ex Hook. var. *stramineus* (Rydb.) Barneby, Leaflet W. Bot. 4: 122. 1945, based on *Cystium stramineum* Rydb., N. Amer. Fl. 24: 409. 1929.

TYPE: Southern Utah, 1870, Palmer s.n. (NY).

STATUS: Locally common, restricted, neither threatened nor endangered.

DISTRIBUTION: Washington Co., Utah

(BRY), Mohave Co., Arizona, and Clark Co., Nevada (Schoener 1975).

*Astragalus lentiginosus* Dougl. ex Hook. var. *ursinus* (A. Gray) Barneby, Leaflet W. Bot. 4: 133. 1945, based on *A. ursinus* A. Gray, Proc. Amer. Acad. Art 13: 367. 1878.

TYPE: Bear Valley, in south central Utah, 1877, Palmer s.n. (GH).

STATUS: Endemic, possibly extinct.

DISTRIBUTION: Iron (or possibly Sevier) Co., Utah; perhaps the specimens are mislabeled.<sup>6</sup>

*Astragalus limnocharis* Barneby, Leaflet W. Bot. 4: 236. 1946.

TYPE: Gravelly beach of Navajo Lake, at Spruce Forest Camp, Iron Co., Utah, 13 Jul 1940, Maguire 19474 (NY).

STATUS: Endemic, rare and restricted; threatened.

DISTRIBUTION: Iron and Kane (BRY) counties, Utah (Barneby 1964).

*Astragalus loanus* Barneby, Mem. New York Bot. Gard. 13: 661. 1964, based on *A. newberryi* var. *wardianus* Barneby, Amer. Midl. Naturalist 37: 481. 1947.

TYPE: Canyon east of Glenwood, Sevier Co., Utah, 1875, Ward 223 (GH).

STATUS: Endemic, rare and threatened (Ripley, E).

DISTRIBUTION: Garfield, Piute, Sevier and Wayne counties, Utah (BRY).

*Astragalus lutosus* M. E. Jones, Contr. W. Bot. 13: 7. 1910.

TYPE: White River, Uintah Co., Utah, 25 May 1958, 5,200 feet, M. E. Jones s.n. (POM).

STATUS: Uinta Basin endemic, rare and edaphically restricted; endangered (Ripley, E).

DISTRIBUTION: Uintah Co., Utah, and Rio Blanco Co. Colorado (Barneby 1964).

*Astragalus malacoides* Barneby, Mem. New York Bot. Gard. 13: 500. 1964.

TYPE: Northeast slope of Kaiparowits Plateau, south of Willow Tank, Kane Co., Utah, 9 May 1939, Harrison 9069 (US).

<sup>5</sup>Schoener (1975) has determined that this name includes var. *platyphyllidius* (Rydb.) M. E. Peck, and therefore defines the taxon differently from Ripley (1975).

<sup>6</sup>This variety was reduced to synonymy under var. *palans* (M. E. Jones) M. E. Jones by Schoener (1975), but that taxon is currently known only from the valleys of the Colorado and Virgin rivers. The exact location of "Bear Valley" has not been determined (McVaugh 1956).

STATUS: Endemic, restricted though locally common; threatened (Ripley, E).

DISTRIBUTION: Kane Co., Utah (BRY).

*Astragalus minthorniae* (Rydb.) Jeps. var. *gracilior* (Barneby) Barneby, Amer. Midl. Naturalist 55: 493. 1956, based on *A. ensiformis* var. *gracilior* Barneby Proc. Calif. Acad. Sci. IV, 25: 158. 1944.

TYPE: Ca 5 miles south of Veyo, Washington Co., Utah, 4,900 feet, Ripley & Barneby 4951 (CAS).

STATUS: Endemic (?). locally common in disjunct populations, possibly threatened (Ripley, E).

DISTRIBUTION: Washington Co., Utah (BRY), and possibly in Mohave Co., Arizona.

*Astragalus monumentalis* Barneby, Leaf. W. Bot. 7: 35. 1953.

TYPE: White Canyon, 25 miles southeast of Hite, San Juan Co., Utah, 18 May 1950. Harrison 11595 (US).

STATUS: Endemic, rare and restricted edaphically, possibly threatened.

DISTRIBUTION: Garfield and San Juan counties, Utah (BRY).

*Astragalus musiniensis* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 671. 1895.

TYPE: San Rafael Swell, Emery (?) Co., Utah. 12 May 1914. M. E. Jones s.n. (POM).

STATUS: Endemic, rare to common, neither threatened nor endangered.

DISTRIBUTION: Carbon, Emery, Garfield, Grand, and Wayne counties, Utah (BRY).

*Astragalus nidularius* Barneby, Leaf. W. Bot. 8: 16. 1956.

TYPE: Near the head of White Canyon, 2 miles below the Kachina Bridge of Natural Bridges N.M., Barneby 12778 (CAS).

STATUS: Endemic, restricted and local, disjunct in several main locations, neither threatened nor endangered. (Ripley, T).

DISTRIBUTION: Garfield, San Juan, and Wayne counties, Utah (BRY).

*Astragalus oophorus* S. Wats. var. *lonchocalyx* Barneby, Leaf. W. Bot. 7: 194. 1954.

STATUS: Rare and threatened (Ripley, T).

DISTRIBUTION: Iron Co., Utah (BRY), and adjacent Nevada (Barneby 1964).

*Astragalus pardalinus* (Rydb.) Barneby, Mem. New York Bot. Gard. 13: 883. 1964, based on *Phaca pardalina* Rydb., N. Amer. Fl. 24: 352. 1929.

TYPE: Cedar Mtn., Emery Co., Utah, 20 May 1915, M. E. Jones s.n. (NY).

STATUS: Endemic, restricted though locally common, neither threatened nor endangered (Ripley, E).

DISTRIBUTION: Emery, Garfield, and Wayne counties, Utah (BRY).

*Astragalus perianus* Barneby, Mem. New York Bot. Gard. 13: 973. 1964.

TYPE: Mountains north of Bullion Creek, near Marysvale, Piute Co., Utah, 23 Jul 1905, Rydberg & Carlton 7104 (NY).

STATUS: Endemic and threatened (Ripley, PoEx).

DISTRIBUTION: Piute (Barneby 1964) and Garfield (BRY) counties, Utah.<sup>7</sup>

*Astragalus pinonis* M. E. Jones, Contr. W. Bot. 8: 14. 1898.

TYPE: Frisco, Beaver Co., Utah, 22 Jun 1880, ca 8,000 feet, M. E. Jones s.n. (POM).

STATUS: Rare and possibly extirpated.

DISTRIBUTION: Beaver and Juab counties, Utah, and in east central Nevada (Barneby 1964).

*Astragalus platytropis* A. Gray, Proc. Amer. Acad. Arts 6: 526. 1865.

STATUS: Rare and local, both edaphically and altitudinally restricted.

DISTRIBUTION: Western Beaver (BRY) and Tooele counties, Utah, and much of Nevada and adjacent California (Barneby 1964).

*Astragalus rafaelsensis* M. E. Jones, Rev. Astrag. 146. 1923.

TYPE: Near Cedar Mtn., Emery Co., Utah, 19 May 1915, M. E. Jones s.n. (POM).

STATUS: Endemic, restricted edaphically, threatened (Ripley, T).

DISTRIBUTION: San Rafael Swell, Emery Co., Utah (BRY).

<sup>7</sup>This species, previously known only from the type collection, was rediscovered in 1975; one of many species thought to be extinct but found during 1975 as a result of the interest generated by the Smithsonian Report.



- Astragalus sabulosus* M. E. Jones, *Zoe* 2: 239. 1891.  
 TYPE: Cisco, Grand Co., Utah, 2 May 1890, *M. E. Jones s.n.* (POM).  
 STATUS: Endemic, rare and edaphically restricted; threatened.  
 DISTRIBUTION: Grand Co., Utah (BRY; Welsh 1974a).
- Astragalus saurinus* Barneby, *Leafl. W. Bot.* 8: 17. 1956.  
 TYPE: Dinosaur N.M., 6 miles north of Jensen, Uintah Co., Utah, 26 Jun 1953, *Holmgren & Tillett 9527* (NY).  
 STATUS: Endemic, rare and edaphically restricted; threatened (Ripley, E).  
 DISTRIBUTION: Uintah Co., Utah (BRY, UTC).
- Astragalus serpens* M. E. Jones, *Proc. Calif. Acad. Sci.* II, 5: 641. 1895.  
 TYPE: Loa Pass, Wayne Co., Utah, 17 Jul 1894, *M. E. Jones 5639i* (POM).  
 STATUS: Endemic, local and periodically abundant in disjunct populations, neither threatened nor endangered (Ripley, E).  
 DISTRIBUTION: Garfield, Piute and Wayne counties, Utah (BRY).
- Astragalus stocksii* Welsh, *Great Basin Nat.* 34: 307. 1974.  
 TYPE: Henry Mts., Penellen Pass, Garfield Co., Utah, 30 May 1972, *Welsh 11740* (BRY).  
 STATUS: Endemic, rare and local; threatened.  
 DISTRIBUTION: Garfield Co., Utah; known only from the type area (BRY).
- Astragalus striatiflorus* M. E. Jones, *Proc. Calif. Acad. Sci.* II, 5: 643. 1895.  
 TYPE: Above Springdale, Washington Co., Utah, 25 Sep 1894, 4,000 feet, *M. E. Jones 6080k* (POM).  
 STATUS: Rare and edaphically restricted; endangered (Ripley, T).  
 DISTRIBUTION: Kane and Washington counties, Utah, and Coconino Co., Arizona (BRY).  
 A main locality of distribution for this plant is the Coral Pink Dunes region where the plants grow in the interdune valleys. The use of that region for recreation possibly spells the doom of this plant in that section.
- Astragalus tephrodes* A. Gray var. *brachylobus* (A. Gray) Barneby, *Amer. Midl. Naturalist* 37: 466. 1947, based on *A. shortianus* var. *brachylobus* A. Gray, *Proc. Amer. Acad. Arts* 13: 367. 1878.  
 STATUS: Rare and possibly extirpated from Utah.  
 DISTRIBUTION: Washington Co., Utah (Barneby 1964).
- Astragalus tetrapteris* A. Gray, *Proc. Amer. Acad. Arts* 13: 369. 1878.  
 TYPE: Ca 25 miles north of St. George, Washington Co., Utah, 1877, *Palmer 111* (GH).  
 STATUS: Restricted but locally common to abundant, possibly threatened.  
 DISTRIBUTION: Beaver, Iron, Kane, and Washington counties, Utah (BRY); also in northwestern Arizona (BRY), Nevada, and Oregon (Barneby 1964).
- Astragalus wardii* A. Gray, *Proc. Amer. Acad. Arts* 12: 55. 1876.  
 TYPE: On the edge of the Aquarius Plateau, Sevier Co., Utah, 1875, 8,700 feet, *Ward 424* (GH).  
 STATUS: Endemic, local and disjunct, neither threatened nor endangered.  
 DISTRIBUTION: Garfield, Kane, Piute, and Sevier counties, Utah (BRY).
- Astragalus wetherillii* M. E. Jones, *Zoe* 4: 34. 1893.  
 STATUS: Possible extirpated from Utah (Ripley, T).  
 DISTRIBUTION: Grand Co., Utah, and west central Colorado (Barneby 1964).
- Astragalus woodruffii* M. E. Jones, *Rev. Astrag.* 77. 1923.  
 TYPE: On the sandy foot of the San Rafael Swell, Emery (?) Co., Utah, 17-18 May 1914, *M. E. Jones s.n.* (POM).  
 STATUS: Endemic, Local and edaphically restricted, possibly threatened.  
 DISTRIBUTION: Emery, Wayne, and possibly Garfield counties, Utah (BRY).
- Dalea epica* Welsh, *Great Basin Nat.* 31: 90. 1971.  
 TYPE: Ca 10 miles east of Halls Crossing, San Juan Co., Utah, 30 Apr 1966, *Welsh 5205* (BRY).  
 STATUS: Endemic, restricted and rare, and possibly threatened.  
 DISTRIBUTION: San Juan Co., Utah (BRY); known only from the type locality.

- Hedysarum boreale* Nutt. var. *gremiale* (Rollins) Northstrom & Welsh, Great Basin Nat. 30: 125. 1970, based on *H. gremiale* Rollins, Rhodora 42: 230. 1940.  
 TYPE: West of Vernal, Uintah Co., Utah, 16 Jun 1937, *Rollins 1733* (GH).  
 STATUS: Endemic, local and restricted, possibly threatened.  
 DISTRIBUTION: Duchesne and Uintah counties, Utah (BRY).
- Hoffmanseggia repens* (Eastw.) Cockerell, Muhlenbergia 4: 68. 1908, based on *Caesalpinia repens* Eastw., Zoe 4: 116. 1893.  
 TYPE: Court House Wash, near where it comes into the Grand [Colorado] River, near Moab, Grand Co., Utah, 26 May 1892, *Eastwood s.n.* (CAS).  
 STATUS: Endemic, edaphically restricted but locally common, neither threatened nor endangered, but apparently extirpated from the type area (Harrison et al. 1964).  
 DISTRIBUTION: Emery (BRY), Grand, and Wayne (BRY) counties, Utah.
- Lathyrus brachycalyx* Rydb. ssp. *zionis* (C. L. Hitchc.) Welsh, Proc. Utah Acad. Sci. 52: 217. 1966, based on *L. zionis* C. L. Hitchc., Univ. Wash. Publ. Biol. 15: 36. 1952.  
 TYPE: Ten miles east of the east entrance of Zion N.P., Kane (?) Co., Utah, 30 May 1949, *Hitchcock 19013* (WTU).  
 STATUS: Rare to locally abundant in disjunct populations, neither threatened nor endangered.  
 DISTRIBUTION: Grand, Kane, San Juan, and Washington counties, Utah, and Coconino Co., Arizona (BRY); reportedly more widespread in Arizona (McDougall 1973).
- Lotus longibracteatus* Rydb., Bull. Torrey Bot. Club 30: 254. 1903.  
 TYPE: Southern Utah, possibly Washington Co., Utah, 1877, *Palmer 94* (US).  
 STATUS: Endemic (?), restricted but locally abundant, neither threatened nor endangered.  
 DISTRIBUTION: Kane and Washington counties, Utah (BRY; Ottley 1944).
- Lupinus jonesii* Rydb., Bull. Torrey Bot. Club 30: 256. 1903.  
 TYPE: Silver Reef, Washington Co., Utah, 3 May 1894, *M. E. Jones 5143* (US).  
 STATUS: Endemic, rare and threatened.  
 DISTRIBUTION: Washington Co., Utah (BRY).
- Lupinus marianus* Rydb., Bull. Torrey Bot. Club 34: 41. 1907.  
 TYPE: Along Bullion Creek above Marysville, Piute Co., Utah, 21 Jul 1905, *Rydberg & Carlton 7024* (NY).  
 STATUS: Endemic, restricted and threatened (Ripley, T).  
 DISTRIBUTION: Piute Co., Utah (BRY).
- Oxytropis jonesii* Barneby, Proc. Calif. Acad. Sci. IV, 27: 215. 1952.  
 TYPE: Red Canyon, Garfield Co., Utah, 7 Jun 1947, 7,150 feet, *Ripley & Barneby 8550* (CAS).  
 STATUS: Endemic, edaphically restricted and threatened.  
 DISTRIBUTION: Emery (US), Garfield (BRY), Iron (BRY, US) and Uintah (BRY, NY, UTC) counties, Utah.
- Oxytropis multiceps* Torr. & Gray, Syn. Fl. N. Amer. 1: 341. 1838.  
 STATUS: Rare and local, possibly endangered.  
 DISTRIBUTION: Daggett Co., Utah, and in Wyoming and Colorado (Barneby 1952).
- Oxytropis obnapiformis* C. L. Porter, Madroño 9: 133. 1947.  
 STATUS: Rare and local, possibly threatened (Ripley, E).  
 DISTRIBUTION: Daggett Co., Utah; also in Wyoming and Colorado (BRY).
- Petelia thompsonae* S. Wats., Amer. Naturalist 7: 300. 1873.  
 TYPE: Kanab, Kane Co., Utah, 1872, *Thompson s.n.* (GH).  
 STATUS: Restricted in disjunct populations, neither threatened nor endangered (Ripley, T).  
 DISTRIBUTION: Emery, Grand, Kane, San Juan, and Washington counties, Utah; Mohave Co., Arizona, Nevada, and Idaho (BRY; Porter 1956).
- Psoralea aromatica* Payson, Bot. Gaz. 60: 379. 1915.

STATUS: Edaphically restricted, local and rare; possibly threatened.

DISTRIBUTION: Emery and Grand counties, Utah, and Montrose Co., Colorado (BRY; Ockendon 1965).

*Psoralea castorea* S. Wats., Proc. Amer. Acad. Arts 14: 291. 1879.

TYPE: Near Beaver City, Beaver Co., Utah, 1877, Palmer 96 (GH).<sup>8</sup>

STATUS: Unknown from Utah in contemporary collection, although a specimen without collector or date labeled *P. castoria* is on file at UT; either extirpated from the state, or, and more likely, never from Utah.

DISTRIBUTION: Arizona and adjacent southern California (Kearney & Peebles 1951; Munz & Keck 1959).

*Psoralea epipsila* Barneby, Leaf. W. Bot. 3: 193. 1943.

TYPE: Ca 17 miles east of Kanab toward Jepson Springs, Kane Co., Utah, 6 Jun 1942, Ripley & Barneby 4832 (CAS).

STATUS: Mohave corridor endemic, rare and endangered (Ripley, T).

DISTRIBUTION: Kane Co., Utah, and adjacent Coconino Co., Arizona (Barneby 1943).

*Psoralea juncea* Eastw., Proc. Calif. Acad. Sci. II, 6: 286. 1896.

TYPE: Epsom Creek, San Juan Co., Utah, 13 Jul 1895, Eastwood 21 (CAS).

STATUS: Navajo Basin endemic, edaphically restricted but abundant to common, neither threatened nor endangered.

DISTRIBUTION: Garfield, Kane, and San Juan counties, Utah (BRY), and Coconino Co., Arizona.

*Psoralea lanceolata* Pursh var. *stenophylla* (Rydb.) Toft & Welsh, Great Basin Nat. 32: 85. 1972, based on *P. stenophylla* Rydb., Bull. Torrey Bot. Club 40: 46. 1913.

TYPE: Proposed dam site near Wilson Mesa, Grand Co., Utah, 1 Jul 1911, Rydberg & Garrett 8367 (NY).

STATUS: Endemic, locally common and neither threatened nor endangered.

DISTRIBUTION: Garfield, Grand, Kane, San Juan and Wayne counties, Utah (Toft & Welsh 1972).

*Psoralea pariensis* Welsh & Atwood, spec. nov. *P. megalanthae* Wooton & Standley proxime affinis sed floribus brevioribus et venas supra valde albo-strigosas.

Plantae habentes caudices bene-evoluti et radices tuberosae, 2-8 cm altae; caules 0.5-3 (4.5) cm longi, internodiis 1-3 elongatis, strigosi; stipulae 4-7 (10) mm longae, ovatae vel obovatae, strigosae; foliola 3-5, 9-23 (25) mm longa, 7-22 mm lata, obovata vel orbicularia, cuneata, rotundata ad truncata vel emarginata apicaliter, utrinque glandulifera; petioli 1.3-6.3 (7) cm longi, strigosi, pilis appressis vel adscendentibus; pedunculi 0.5-2.2 (2.8) cm longi, pilis appressis vel adscendentibus; bractaeae 4-6 (8) mm longae, ovatae vel obovatae, acuminatae abrupte, pilosae rigide; pedicelli (1) 2-3.8 mm longi, pilis adscendentibus; calyces plus minusve gibbosi basim, tubus 3.3-4 (4.6) mm longus, dentes inaequales, infimis 5.3-6.8 mm longis, circa duplo latioribus quam lateralibus; corolla 8.8-10.5 (12) mm longa, dente infimo calycis leviter longioribus; alae vexillo subaequalis, purpureo-maculatae ad apicem; fructus usque ad 9 mm longum et seminum usque ad 5.2 mm longum.

TYPE: UTAH: Garfield Co.: Bryce Canyon National Park, in ponderosa pine woods, as ground layer, at ca 8,000 feet elevation, 26 Jun 1975, Welsh & Murdock 12859. Holotype, BRY, Isotypes to be distributed.

ADDITIONAL SPECIMENS EXAMINED: UTAH: Garfield Co.: East Creek, 3 miles south of Inspiration Point, Bryce Canyon N.P., in black sagebrush area, 11 Jun 1970, Buchanan 1494 (BRY, wsc); Paria View, Bryce Canyon N.P., in open ponderosa pine woods, ca 8,000 feet elevation, 12 Jun 1975, S. L. & S. L. Welsh 12810 (BRY); East Creek, 9 Jun 1931, Weight B-31/6-305 (BCNP, US). Kane Co.: Hackberry Canyon in Cottonwood Wash, ca 10 miles north of U.S. Highway 89, sec. 31, T. 40S., R. 1W., 26 Apr 1972, Atwood 3684 (BRY).

STATUS: Endemic, rare and threatened.

DISTRIBUTION: Kane and Garfield counties, Utah.

<sup>8</sup>It seems likely that Palmer mislabeled the type material, and that it was in reality from "Beaverdam," Mohave Co., Arizona. The species is not known from Utah.

*Parryella filifolia* Torr. & Gray in Gray, Proc. Amer. Acad. Arts 7: 397. 1868.

STATUS: Restricted and rare; threatened.

DISTRIBUTION: Grand and San Juan counties, Utah (BRY); also in northern Arizona and New Mexico.

*Psorothamnus thompsonae* (Vail) Welsh & Atwood, comb. nov., based on *Parosela thompsonae* Vail, Bull. Torrey Bot. Club 24: 18. 1897.

TYPE: Kanab, Kane Co., Utah, or possibly Mohave Co., Arizona, 1872, *Thompson s.n.*<sup>9</sup> (NY).

STATUS: Endemic (?); restricted but locally common and neither threatened nor endangered.

DISTRIBUTION: Emery, Garfield, Kane, San Juan, and Wayne counties, Utah (BRY and personal observations).

*Robinia neomexicana* A. Gray, Mem. Amer. Acad. Arts II, 5: 314. 1855.

STATUS: Restricted and rare, possibly threatened.

DISTRIBUTION: Garfield (UT) and Washington counties, Utah (BRY); widespread elsewhere.

#### GENTIANACEAE

*Gentianella tortuosa* (M. E. Jones) Gillett, Ann. Missouri Bot. Gard. 44: 248. 1957, based on *Gentiana tortuosa* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 707. 1895.

TYPE: Panguitch Lake, Garfield Co., Utah, 7 Sep 1894, 8,400 feet, *M. E. Jones 6008* (POM).

STATUS: Restricted but locally common, neither threatened nor endangered.

DISTRIBUTION: Garfield, Iron, Kane, Sanpete counties, Utah (BRY), and Clark Co., Nevada (Gillett 1957).

#### GERANIACEAE

*Geranium marginale* Rydb. ex Hanks & Small, N. Amer. Fl. 25: 16. 1907.

TYPE: Aquarius Plateau at the head of Poison Creek, Garfield Co., Utah, 4 Aug 1905, *Rydberg & Carlton 7401* (NY).

STATUS: Endemic, restricted and possibly threatened (Ripley, T).

DISTRIBUTION: Garfield, Sevier, and Wayne counties, Utah (Nebeker 1974).

#### HYDROPHYLLACEAE

*Hydrophyllum fendleri* (A. Gray) A. A. Heller, Pl. World 1: 23. 1897, based on *H. occidentale* var. *fendleri* A. Gray, Proc. Amer. Acad. Arts 10: 314. 1875.

STATUS: Restricted and rare, possibly threatened.

DISTRIBUTION: San Juan Co., Utah (UT, UTC); widespread from Washington and Oregon to Wyoming, Colorado and New Mexico, with var. *fendleri* restricted to the Rocky Mountain area (Constance 1942).

*Nama retrorsum* J. T. Howell, Leaflet. W. Bot. 5: 149. 1949.

STATUS: Restricted and local, possibly threatened (Ripley, T).

DISTRIBUTION: Garfield, Grand, and Kane counties, Utah (BRY), and north-eastern Arizona (Atwood, in press).

*Nemophila parviflora* Dougl. ex Benth. var. *austinae* (Eastw.) A. Brand, Pflanzenz. IV (Heft 251): 55. 1913, based on *N. austinae* Eastw., Bull. Torrey Bot. Club 28: 143. 1901.

STATUS: Restricted and local, possibly threatened.

DISTRIBUTION: Weber Co., Utah; widespread in Idaho, Nevada, California, Oregon, and Washington (Atwood, in press).

*Phacelia anelsonii* J. F. Macbride, Contr. Gray Herb. 49: 26. 1917.

STATUS: Restricted and local; threatened (Ripley, T).

DISTRIBUTION: Washington Co., Utah (BRY); southern Nevada and adjacent California (Atwood, in press).

*Phacelia argillacea* Atwood, Phytologia 26: 437. 1973.

TYPE: Clear Creek, in Spanish Fork Canyon along the railroad on the east side of U.S. Highway 50-6, Utah Co., Utah, *Atwood et al. 3091* (BRY).

STATUS: Endemic, rare and endangered (Ripley, E).

<sup>9</sup>It is likely that some of the collections sent to Gray at Harvard University who, in turn, gave them to Watson; may not have been collected by Mrs. Thompson, but others with John Wesley Powell. It is known that both Powell and Bishop collected plants and gave them to Ellen Thompson who did not collect outside of the Kanab area of Kane Co., Utah (Cronquist et al. 1972).



- DISTRIBUTION: Utah Co., Utah (Atwood 1973, in press).
- Phacelia cephalotes* A. Gray, Proc. Amer. Acad. Arts 10: 325. 1875.
- TYPE: Valley of the Virgin River, Washington Co., Utah, May 1874, Parry 179 (GH).
- STATUS: Restricted and local, possibly threatened (Ripley, T).
- DISTRIBUTION: Kane and Washington counties, Utah, and Mohave and Navajo counties, Arizona (Atwood, in press).
- Phacelia constancei* Atwood, Rhodora 74: 451. 1972.
- STATUS: Edaphically restricted and local; threatened (Ripley, T).
- DISTRIBUTION: Emery, Garfield, Kane, and San Juan counties, Utah, and Mohave Co., Arizona (Atwood 1975, in press).
- Phacelia crenulata* Torr. ex Wats. in King var. *angustifolia* Atwood, Great Basin Nat. 35: 158. 1975.
- STATUS: Restricted and in disjunct populations, neither threatened nor endangered.
- DISTRIBUTION: Beaver, Garfield, and Kane counties, Utah, and in Coconino and Mohave counties, Arizona (Atwood 1975, in press).
- Phacelia demissa* A. Gray var. *heterotricha* J. T. Howell, Amer. Midl. Naturalist 29: 8. 1943.
- TYPE: Marysvale, Piute Co., Utah, 4 Jun 1894, M. E. Jones 5388a (POM).
- STATUS: Endemic, restricted and possibly threatened (Ripley, T).
- DISTRIBUTION: Piute, Sevier, and Wayne counties, Utah (Atwood, in press).
- Phacelia howelliana* Atwood, Rhodora 74: 456. 1972.
- TYPE: Ca 0.4 miles north of Bluff along Utah Highway 163, San Juan Co., Utah, 13 May 1970, Atwood 2454 (BRY).
- STATUS: Endemic, restricted but locally abundant, neither threatened nor endangered.
- DISTRIBUTION: Grand and San Juan counties, Utah (BRY; Atwood 1975, in press).
- Phacelia indecora* J. T. Howell, Amer. Midl. Naturalist 29: 12. 1943.
- TYPE: Bluff, San Juan Co., Utah, 24 May 1919, M. E. Jones s.n. (CAS).
- STATUS: Endemic, rare and endangered (Ripley, T).
- DISTRIBUTION: Wayne and San Juan counties, Utah (Atwood, in press).
- Phacelia mammillarensis* Atwood, Phytologia 26: 437. 1973.
- TYPE: Ca 6 miles east of Glen Canyon City, along the road to Warm Creek, Kane Co., Utah, 6 May 1970, Welsh & Atwood 9809 (BRY).
- STATUS: Endemic, edaphically restricted and endangered (Ripley, E).
- DISTRIBUTION: Garfield and Kane counties, Utah (Atwood 1975, in press).
- Phacelia rafaensis* Atwood, Rhodora 74: 454. 1972.
- TYPE: Capitol Reef N.M., Wayne Co., Utah, 12 Jun 1969, Atwood & Higgins 1834 (BRY).
- STATUS: Restricted and local, threatened (Ripley, T).
- DISTRIBUTION: Emery, Washington, and Wayne counties, Utah, and Coconino Co., Arizona (Atwood 1975, in press).
- Phacelia salina* (A. Nels.) J. T. Howell, Leaflet W. Bot. 4: 16. 1944, based on *Emmenanthe salina* A. Nels., Bull. Torrey Bot. Club 24: 381. 1898, a substitute name for *E. foliosa* M. E. Jones, Zoe 4: 278. 1893, not *P. foliosa* Phillip.
- TYPE: Deep Creek Valley, above Furber, Tooele Co., Utah, 8 Jun 1891, M. E. Jones s.n. (POM).
- STATUS: Rare and possibly extirpated from Utah.
- DISTRIBUTION: Tooele Co., Utah, and adjacent Nevada and southern Wyoming (Atwood, in press).
- Phacelia tetramera* J. T. Howell, Leaflet W. Bot. 4: 16. 1944, based on *Emmenanthe pusilla* A. Gray, Proc. Amer. Acad. Arts 11: 87. 1876, not *P. pusilla* Buckley nor Torr.
- STATUS: Rare and possibly threatened.
- DISTRIBUTION: Weber Co., Utah (Arnou 3985 [BRY, UT]); also in Nevada, California and Oregon (Howell 1944).
- Phacelia utahensis* E. G. Voss, Bull. Torrey Bot. Club 64: 135. 1937.

TYPE: Gunnison, Sanpete Co., Utah, 7 Jun 1910, *M. E. Jones s.n.* (POM).

STATUS: Endemic, edaphically restricted and threatened (Ripley, T).

DISTRIBUTION: Carbon (UT), Sanpete, and Sevier counties, Utah (Atwood 1975, in press).

#### JUNCACEAE

*Juncus bryoides* F. J. Hermann, Leaflet W. Bot. 5: 117. 1948.

STATUS: Restricted, rare and possibly threatened.

DISTRIBUTION: Salt Lake and Washington counties, Utah, and in California (Hermann 1948).

#### LAMIACEAE

*Stachys rothrockii* A. Gray, Proc. Amer. Acad. Arts 12: 82. 1876.

STATUS: Restricted, rare and possibly endangered.

DISTRIBUTION: Near Orderville, Kane Co., Utah (BRY; Barneby 1944), northern New Mexico and Arizona.

#### LILIACEAE

*Agave utahensis* Engelm. in King, Rep. Geol. Explor. 40th Parallel 5: 497. 1871.

TYPE: About St. George, Washington Co., Utah, *Palmer s.n.* (MO).

STATUS: Restricted and rare except locally; commercially exploited and possibly endangered. Our plant is var. *utahensis*.

DISTRIBUTION: Washington Co., Utah (BRY); also in Coconino and Mohave counties, Arizona (Breitung 1960).

*Allium passeyi* Holmgren & Holmgren, Brittonia 26: 309. 1974.

TYPE: Southwest part of Howell Valley, sec. 7, T.11N., R.5W., Box Elder Co., Utah, 13 Jun 1960, 4,800 feet, *Holmgren et al. 13125* (NY).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Box Elder Co., Utah; known only from the type locality (Holmgren & Holmgren 1974).

*Eremocrinum albomarginatum* (M. E. Jones) M. E. Jones, Zoe 4: 53. 1893, based on *Hesperanthes albomarginata* M. E. Jones, Zoe 2: 251. 1891.

TYPE: Green River, Emery Co., Utah, 9 May 1890, *M. E. Jones s.n.* (POM).

STATUS: Navajo Basin endemic, edaphically restricted but locally common to abundant and neither threatened nor endangered.

DISTRIBUTION: Emery, Garfield, Grand, Kane, San Juan, and Wayne counties, Utah, and Apache and Navajo counties, Arizona (MacDougall 1973).

*Nolina microcarpa* S. Wats., Proc. Amer. Acad. Arts 14: 247. 1879.

STATUS: Apparently extirpated from Utah; last seen in Zion N.P. in 1925 (Cottam 1974).

DISTRIBUTION: Washington Co., Utah, to northern Mexico, eastward to western Texas.

This plant has mistakenly been called *Nolina parryi* (Kearney & Peebles 1951) or *N. bigelovii* (Cottam 1974).

*Yucca brevifolia* Engelm. in King, Rep. Geol. Explor. 40th Parallel 5: 496. 1871.

STATUS: Restricted but locally abundant; possibly threatened by commercial exploitation.

DISTRIBUTION: Southwestern Washington Co., Utah; western Arizona, southern Nevada and adjacent California (McKelvey 1938; Weber 1953).

*Yucca toftiae* Welsh, Great Basin Nat. 34: 308. 1974.

TYPE: Three Garden, ca 1 mile north of the confluence of San Juan and Colorado rivers, Lake Powell, San Juan Co., Utah, 4 Jun 1973, *Welsh 11935a* (BRY).

STATUS: Endemic, local and uncommon; possibly threatened.

DISTRIBUTION: Kane and San Juan counties, Utah (BRY); much of the known range of this entity has been inundated by the water of Lake Powell.

*Zigadenus vaginatus* (Rydb.) J. F. Macbride, Contr. Gray Herb. 53: 4. 1918, based on *Anticlea vaginata* Rydb., Bull. Torrey Bot. Club 39: 108. 1912.

TYPE: Armstrong Canyon, near the Natural Bridges, San Juan Co., Utah, 4-6 Aug 1911. *Rydberg & Garrett 9407* (NY).

STATUS: Endemic, restricted and possibly endangered.

DISTRIBUTION: Grand, Kane, and San Juan counties, Utah (BRY).

This distinctive species was placed in synonymy under the Mexican species, *Zigadenus volcanicus* Benth., Pl. Hartwegianus 96. 1840, by Tidestrom (1925), Tidestrom and Kittell (1941), and followed by Holmgren and Reveal (1967). This plant is related to *Z. elegans* Pursh, but differs in having an elongated paniculate inflorescence and smaller white to greenish flowers borne in the late summer and early fall.

#### LOASACEAE

*Mentzelia argillosa* J. Darlington, Ann. Missouri Bot. Gard. 21: 153. 1934.

TYPE: Vermillion, Sevier Co., Utah, 16 Jul 1894, 5,600 feet, *M. E. Jones 5631* (MO).

STATUS: Endemic, edaphically restricted and threatened.

DISTRIBUTION: Sevier Co., Utah (BRY).

*Mentzelia obscura* Thompson & Roberts, Phytologia 21: 284. 1971.

STATUS: Local and infrequent.

DISTRIBUTION: Washington Co., Utah; southern Nevada and western Arizona westward to California and Baja California, Mexico.

*Petalonyx parryi* A. Gray, Proc. Amer. Acad. Arts 10: 72. 1874.

TYPE: St. George, Washington Co., Utah, "within a stone's throw of the great Mormon Temple" (see Parry 1875), 1874, *Parry 75* (GH).

STATUS: Rare and possibly endangered.

DISTRIBUTION: Washington Co., Utah (BRY), northern Arizona and southern Nevada (Davis & Thompson 1967).

#### LOGANIACEAE

*Buddleja utahensis* Coville, Proc. Biol. Soc. Wash. 7: 69. 1892.

TYPE: Near St. George, Washington Co., Utah, 1877, *Palmer s.n.* (US).

STATUS: Restricted, rare and possibly threatened.

DISTRIBUTION: Washington Co., Utah; also in northwestern Arizona, southern Nevada and southeastern California (Munz 1974).

#### LORANTHACEAE

*Phorandendron californicum* Nutt., J. Acad. Nat. Sci. Philadelphia II, 1: 185. 1848.

STATUS: Restricted but locally abundant; neither threatened nor endangered.

DISTRIBUTION: Washington Co., Utah; widespread in Arizona, Nevada, southern California, and northern Mexico (Kearney & Peebles 1951).

#### MALVACEAE

*Sphaeralcea caespitosa* M. E. Jones, Contr. W. Bot. 12: 4. 1908.

TYPE: Wah Wah, Beaver Co., Utah, 1906, 6,000 feet, *M. E. Jones s.n.* (POM).

STATUS: Endemic, rare and threatened.

DISTRIBUTION: Beaver and Millard counties, Utah (BRY; Jefferies 1972).

#### MARTYNIACEAE

*Proboscidea louisiana* (Miller) Thell., Mém. Soc. Sci. Nat. Cherbourg 3: 480. 1912, based on *Martynia louisiana* Miller, Gard. Dict. ed 8, Martynia No. 3. 1768.

STATUS: Restricted and uncommon, but neither rare nor endangered.

DISTRIBUTION: Washington Co., Utah (BRY); widespread in the southwestern states and elsewhere.

#### NAJADACEAE

*Najas caespitosus* (Maguire) Reveal, stat. & comb. nov., based on *Najas flexilis* ssp. *caespitosus* Maguire in Maguire & Jensen, Rhodora 44: 7. 1942.

TYPE: Common in shallow water, Pelican Point, Fish Lake, Sevier Co., Utah, 3 Aug 1940, 8,600 feet, *Maguire 19388* (NY).

STATUS: Endemic and endangered.

DISTRIBUTION: Sevier Co., Utah; known only from the type area (Maguire & Jensen 1942).

*Najas guadalupensis* Morong, Mem. Torrey Bot. Club 3: 60. 1893.

STATUS: Rare and restricted.

DISTRIBUTION: Cache Co., Utah (UTC; Maguire & Jensen 1942); widespread elsewhere.

## NYCTAGINACEAE

*Boerhaavia torreyana* (S. Wats.) Standley, Contr. U.S. Natl. Herb. 12: 385. 1909, based on *B. spicata* var. *torreyana* S. Wats., Proc. Amer. Acad. Arts 24: 70. 1889.

STATUS: Local, rare and highly restricted; possibly threatened.

DISTRIBUTION: Kane Co., Utah (*Atwood 3389* [BRY, WTS]).

*Hermidium alipes* S. Wats. var. *pallidum* C. L. Porter, Rhodora 54: 158. 1952.

TYPE: Ca 5 miles south of Vernal, Uintah Co., Utah, 3 Jun 1950, 5,200 feet, *Porter 5308* (RM).

STATUS: Endemic, rare and endangered.

DISTRIBUTION: Uintah Co., Utah (*Porter 1952*).

## OLEACEAE

*Menodora scabra* A. Gray, Amer. J. Sci. Arts II, 14: 44. 1852.

STATUS: Rare, in disjunct populations, and possibly threatened.

DISTRIBUTION: Garfield and Washington counties, Utah (BRY); widespread in the southwestern states and northern Mexico (*Kearney & Peebles 1951*).

## ONAGRACEAE

*Epilobium nevadense* Munz, Bull. Torrey Bot. Club 56: 166. 1929.

STATUS: Rare and threatened (Ripley, T).

DISTRIBUTION: Washington Co., Utah (*Higgins 1972b*), and Clark Co., Nevada.

*Oenothera brevipes* A. Gray var. *pallidula* Munz, Amer. J. Bot. 15: 229. 1928.

STATUS: Restricted and local, possibly threatened.

DISTRIBUTION: Washington Co., Utah (BRY); also in northwestern Arizona, southern Nevada and southern California (*Raven 1969*).

*Oenothera gouldii* (Raven) Welsh & Atwood, comb. nov., based on *Camissonia gouldii* Raven, Contr. U.S. Natl. Herb. 37: 368. 1969.

TYPE: Steep slope of volcanic cone among loose cinders, Diamond Valley, 12 miles north of St. George, Wash-

ington Co., Utah, 15 Oct 1941, 3,500 feet, *Gould 1423* (POM).

STATUS: Restricted and rare, possibly threatened.

DISTRIBUTION: Washington Co., Utah, and Coconino Co., Arizona (*Raven 1969*).

*Oenothera megalantha* (Munz) Raven, Univ. Calif. Publ. Bot. 34: 111. 1962, based on *O. heterochroma* var. *megalantha* Munz, Leaflet W. Bot. 3: 52. 1941.

STATUS: Restricted and rare, endangered (Ripley, E).

DISTRIBUTION: Kane Co., Utah (BRY), and Nye Co., Utah (*Raven 1969*; *Beatley 1973*).

*Oenothera parryi* S. Wats., Amer. Naturalist 9: 270. 1875.

TYPE: Near St. George, Washington Co., Utah, 1874, *Parry 72* (GH).

STATUS: Restricted but locally abundant (Ripley, T).

DISTRIBUTION: Washington Co., Utah, and adjacent Arizona (BRY).

## OPHIOGLOSSACEAE

*Botrichium boreale* (Fries) Milde var. *obtusilobum* (Rupr.) M. Braun, Index N. Amer. Ferns 33. 1938. Based on *B. crassinervum* var. *obtusilobum* Rupr., Beitr. Pflanzenk. Russ. Reiches 11: 42. 1959.

STATUS: Rare; possibly threatened.

DISTRIBUTION: Summit Co., Utah according to *Flowers 1944*; not reported from Utah by *Cronquist et al. 1972*; widespread in northwestern America.

*Botrychium lanceolatum* (S. G. Gmelin) Angström, Bot. Not. 1854: 68. 1854, based on *Osmunda lanceolata* S. G. Gmelin, Novi Comment. Acad. Petrop. 12: 516-1768.

STATUS: Rare; possibly threatened.

DISTRIBUTION: Juab Co., Utah (*Flowers 1944*; *Maguire & Holmgren 1946*); widely distributed in northern North America (*Welsh 1974b*).

*Botrychium matricariifolium* A. Braun in Koch var. *hesperium* (Maxon & Clausen) M. Braun, Index N. Amer. Ferns 39. 1938, based on *B. matricariifolium* ssp. *hesperium* Maxon & Clausen, Mem. Torrey Bot. Club 19: 38. 1938.

STATUS: Rare; possibly threatened.



DISTRIBUTION: Salt Lake Co., Utah (Flowers 1944; not reported by Cronquist et al. 1972 as, in their opinion, Flowers' identification was in error); also in Colorado.

## ORCHIDACEAE

*Cypripedium calceolus* L. var. *parviflorum* (Salisb.) Fern., *Rhodora* 48: 4. 1946, based on *C. parviflorum* Salisb., *Trans. Linn. Soc. London* 1: 77. 1791.

STATUS: Extirpated or endangered.

DISTRIBUTION: Cache (UTC) and Utah (BRY) counties, Utah; widespread in northern North America.

*Cypridedium fasciculatum* Kellogg ex Wats., *Proc. Amer. Acad. Arts* 17: 380. 1882.

STATUS: Rare and endangered.

DISTRIBUTION: Salt Lake (BRY) and Summit (Tidestrom 1925) counties, Utah; widespread and rare in Washington, California, Idaho, Montana, Wyoming, and Colorado.

*Spiranthes cernua* (L.) Rich., *Mém. Mus. Hist. Nta.* 4: 59. 1818, based on *Ophrys cernua* L., *Sp. Pl.* 946. 1753.

STATUS: Extirpated from Utah.

DISTRIBUTION: Salt Lake Co., Utah (*M. E. Jones 1908* [POM]); widespread in the eastern United States (Correll 1950).

## PAPAVERACEAE

*Papaver radicum* Rottb., *Skr. Kjøbenhavnske Selsk. Laerd. Elsk.* 10: 455. 1770.

STATUS: Rare and restricted.

DISTRIBUTION: Duchesne Co., Utah (BRY); widespread in northern North America, circumboreal (Welsh 1974b).

*Arcotmecon humilis* Coville, *Proc. Biol. Soc. Wash.* 7: 67. 1892.

TYPE: St. George, Washington Co., Utah, 1874, *Parry s.n.* (GH).

STATUS: Restricted and rare, endangered (Ripley, E).

DISTRIBUTION: Washington Co., Utah, and Mohave Co., Arizona (BRY).

## PINACEAE

*Pinus longaeva* D. K. Bailey, *Ann. Missouri Bot. Gard.* 57: 243. 1970.

STATUS: Restricted but hardly rare; possibly threatened.

DISTRIBUTION: Beaver (personal observations), Carbon, Duchesne, Garfield, Iron (personal observations), Kane, Millard, and Washington counties, Utah; also in Nevada and eastern California (Bailey 1970).

## POACEAE

*Andropogon glomeratus* (Walter) Britton, Sterns & Poggenb., *Prelim. Cat. Antho. & Pterid.* within 100 mi. New York City. 67. 1888, based on *Cinna glomerata* Walter, *Fl. Carol.* 59. 1788.

STATUS: Rare and possibly extirpated from Utah, previously known only along Lake Powell.

DISTRIBUTION: Kane and San Juan counties, Utah (BRY); widely distributed in southern and southeastern United States, West Indies, Yucatan and Central America.

*Blepharidachne kingii* (S. Wats.) Hackel in DC., *Monogr. Phanerog.* 6: 261. 1889, based on *Eremochloe kingii* S. Wats. in King, *Rep. Geol. Explor.* 40th Parallel 5: 382. 1871.

STATUS: Rare and local.

DISTRIBUTION: Beaver, Millard, and Tooele counties, Utah, and adjacent Nevada (BRY).

*Festuca dasyclada* Hackel ex. Beal, *Grasses N. Amer.* 2: 602. 1896.

TYPE: Joe's Valley, Emery Co., Utah, 1875, *Parry s.n.* (US).

STATUS: Endemic and possibly endangered (Ripley, PoEx).

DISTRIBUTION: Emery and Sanpete counties, Utah (N. H. Holmgren, personal communication), and Colorado (N. West, personal communication).<sup>10</sup>

*Festuca sororia* Piper, *Contr. U.S. Natl. Herb.* 16: 197. 1913.

STATUS: Rare and restricted.

DISTRIBUTION: Southeastern Utah (Hitchcock & Chase 1950).

*Helictotrichon mortonianum* (Lams.-Scribn.) Henrard, *Blumea* 3: 429. 1940, based on *Avena mortonianum* Lams.-Scribn., *Bot. Gaz.* 21: 133. 1896.

STATUS: Rare and endangered.

DISTRIBUTION: Utah (Hitchcock &

<sup>10</sup>Until 1975 this species was known only from the type.

Chase 1950); also in Colorado and New Mexico.

*Imperata brevifolia* Vasey, Bull. Torrey Bot. Club 13: 26. 1886.

STATUS: Rare, restricted and endangered or possibly extirpated from Utah.

DISTRIBUTION: San Juan Co., Utah (BRY); California, Nevada, and Mexico (Hitchcock & Chase 1950).

The known localities in Utah where this grass occurred have been inundated by Lake Powell.

*Muhlenbergia arsenei* Hitchc., Proc. Biol. Soc. Wash. 41: 161. 1928.

STATUS: Rare and local.

DISTRIBUTION: Garfield (BRY), Kane (BRY), San Juan (UT), and Washington (UTC) counties, Utah; New Mexico and California (Cottam et al. 1940).

*Muhlenbergia curtifolia* Lams.-Scribn., Bull. Torrey Bot. Club 38: 328. 1911.

TYPE: Between Kanab and Carmel, Kane Co., Utah, *M. E. Jones 6047* (US).

STATUS: Restricted and local, possibly threatened.

DISTRIBUTION: Garfield, Kane, San Juan, and Washington (UT) counties, Utah (BRY, UTC); southern Nevada and northern Arizona (Hitchcock & Chase 1950).

*Muhlenbergia minutissima* (Steudel) Swallen, Contr. U.S. Natl. Herb. 29: 207. 1947, based on *Agrostis minutissima* Steudel, Syn. Pl. Glum. 1: 171. 1854.

STATUS: Local and rare.

DISTRIBUTION: Washington Co., Utah (*Atwood & Higgins 5528* [BRY]).

*Muhlenbergia wrightii* Vasey in Coult., Manual Bot. Rocky Mt. Region 409. 1885.

STATUS: Rare and local.

DISTRIBUTION: Utah (Hitchcock & Chase 1950); Arizona, Colorado, Oklahoma, New Mexico, and northern Mexico.

*Puccinellia simplex* Lams.-Scribn., U.S.D.A. Div. Agrostol. Circ. 16: 1. 1899.

STATUS: Rare and possibly threatened.

DISTRIBUTION: Weber Co., Utah (*Arnou 3986* [BRY]); also in California (Hitchcock & Chase 1950).

*Sporobolus pulvinatus* Swallen, J. Wash. Acad. Sci. 31: 351. 1941.

STATUS: Rare and possibly threatened.

DISTRIBUTION: San Juan Co., Utah (BRY); New Mexico, Arizona, Texas and northern Mexico (Hitchcock & Chase 1950).

#### POLEMONIACEAE

*Gilia caespitosa* A. Gray, Proc. Amer. Acad. Arts 12: 80. 1876.

TYPE: Rabbit Valley on barren cliffs of sandstone, Wayne Co., Utah, 1875, 7,000 feet, *Ward s.n.* (GH).

STATUS: Endemic, rare and endangered (Ripley, E).

DISTRIBUTION: Wayne Co., Utah (BRY, UTC).

*Gilia latifolia* S. Wats. ex Parry, Amer. Naturalist 9: 347. 1875.

TYPE: Valley of the Virgin, near St. George, Washington Co., Utah, 1874, *Parry 188* (GH).

STATUS: Rare and local; possibly threatened.

DISTRIBUTION: Kane, Wayne, and Washington counties, Utah (BRY); Arizona, southern Nevada and southern California (Matthews 1971).

*Gilia mcvickeræ* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 712. 1895.

TYPE: Marysvale, Piute Co., Utah, 7,000 feet, *M. E. Jones 5378* (POM).

STATUS: Endemic, rare and local; threatened (Ripley, T).

DISTRIBUTION: Piute, Sevier, and Uintah counties, Utah (BRY).

*Gilia stenothyrsa* A. Gray, Proc. Amer. Acad. Arts 8: 276. 1870.

TYPE: In a clear forest, Uinta Mts., Duchesne or Uintah counties, Utah, 1844, *Frémont s.n.* (GH).

STATUS: Endemic, locally common and neither threatened nor endangered.

DISTRIBUTION: Carbon (UT), Emery, Duchesne and Uintah counties, Utah (BRY, UTC).

*Phlox chuteana* A. Nels., Amer. J. Bot. 28: 24. 1922.

STATUS: Rare and local; possibly threatened (Ripley, T).

DISTRIBUTION: San Juan Co., Utah (BRY), and northern Arizona (Kearney & Peebles 1951).

*Phlox gladiformis* (M. E. Jones) E. Nels., Rev. West. N. Amer. Phloxes 21: 1899, based on *P. longifolia* var. *gladiformis* M. E. Jones, Proc. Calif. Acad. Sci. 11, 5: 711. 1895.

TYPE: Cedar City, Iron Co., Utah, 11 May 1894, 6,500 feet, *M. E. Jones* 5208c (POM).

STATUS: Rare and local: possibly threatened (Ripley, T).

DISTRIBUTION: Garfield, Iron, and Washington counties, Utah (BRY), and adjacent Nevada.

*Phlox grahamii* Wherry, Brittonia 5: 63. 1943.

TYPE: Talus slopes on west side of Green River, south of the mouth of Sand Wash, Uintah Co., Utah, 27 May 1933, *Graham* 7884 (CM).

STATUS: Endemic, rare and local; threatened (Ripley, T).

DISTRIBUTION: Uintah Co., Utah; known only from the type locality.

*Phlox jonesii* Wherry, Notul., Nat. Acad. Nat. Sci. Philadelphia 146: 8. 1944.

TYPE: Zion Canyon, Washington Co., Utah, 7 May 1923, *M. E. Jones* s.n. (US).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Washington Co., Utah; known only from the type locality (Wherry 1955).

#### POLYGONACEAE

*Eriogonum ammophilum* Reveal, Phytologia 23: 163. 1972.

TYPE: Ca 1.3 miles northwest of Ibox Warm Point, on a dry sandy flat, Millard Co., Utah, 4 Aug 1970, 5,270 feet, *Holmgren & Holmgren* 4650 (US).

STATUS: Endemic, rare and local; endangered (Ripley, E).

DISTRIBUTION: Millard Co., Utah (BRY, DERM, UTC).

*Eriogonum aretioides* Barneby, Leaflet W. Bot. 5: 154. 1949.

TYPE: Bare limestone gravel benches in the foothills of the Escalante Range at Widtsoe, Garfield Co., Utah, 8 Jun 1947, 7,750 feet, *Ripley & Barneby* 8570 (CAS).

STATUS: Endemic, edaphically restricted and endangered (Ripley, E).

DISTRIBUTION: Garfield Co., Utah (BRY, UT, UTC).

*Eriogonum batemanii* M. E. Jones, Contr. W. Bot. 11: 11. 1903.

TYPE: Price, Carbon Co., Utah, 29 Jun 1898, *M. E. Jones* s.n. (POM).

STATUS: Restricted and local, neither threatened nor endangered.

DISTRIBUTION: Carbon, Duchesne, Emery, Garfield, and Uintah counties, Utah, and Rio Blanco Co., Colorado (Reveal 1973a).

*Eriogonum brevicaule* Nutt. var. *cottamii* (S. Stokes) Reveal, Great Basin Nat. 32: 113. 1972, based on *E. tenellum* ssp. *cottamii* S. Stokes, Gen. Eriog. 70. 1936.

TYPE: Canyons in bottoms of the slopes of West Mtn., Utah Co., Utah, 20 Aug 1925, *Cottam* 411 (BRY).

STATUS: Endemic, restricted and rare.

DISTRIBUTION: Juab, Millard, and Utah counties, Utah (BRY, NY, UTC).

*Eriogonum brevicaule* Nutt. var. *wasatchense* (M. E. Jones) Reveal, Great Basin Nat. 32: 113. 1972, based on *E. wasatchense* M. E. Jones, Contr. W. Bot. 11: 11. 1903.

TYPE: American Fork Canyon, Utah Co., Utah, 27 Jul 1880, *M. E. Jones* 1877 (POM).

STATUS: Endemic, restricted and rare.

DISTRIBUTION: Davis, Juab, Millard, Salt Lake, Utah, and Weber counties, Utah (BRY, DS, GH, UT, UTC).

*Eriogonum clavellatum* Small, Bull. Torrey Bot. Club 25: 48. 1898.

TYPE: Barton Range, San Juan Co., Utah, 13 Jul 1895, *Eastwood* 132 (NY).

STATUS: Rare and highly restricted; threatened (Ripley, T).

DISTRIBUTION: San Juan Co., Utah (BRY, UTC), and Montezuma Co., Colorado (CS).

*Eriogonum contortum* Small ex Rydb., Agric. Exp. Sta. Agric. Coll. Colorado Bull. (Fl. Colorado) 100: 107. 1906.

STATUS: Infrequent but neither threatened nor endangered.

DISTRIBUTION: Grand Valley endemic in Grand Co., Utah (BRY, UTC), and Garfield and Mesa counties, Colorado.

*Eriogonum corymbosum* Benth. in DC. var. *davidsei* Reveal, Great Basin Nat. 27: 216. 1968.

TYPE: Ca 0.7 miles south of U.S. Highway 50-6 at Wellington, just south of the Price River bridge, 9 Sep 1967, Reveal & Davidse 956 (UTC).

STATUS: Endemic, restricted and local; endangered (Ripley, E).

DISTRIBUTION: Carbon Co., Utah; known only from type locality.

*Eriogonum corymbosum* Benth. in DC. var. *divaricatum* Torr. & Gray in Beckwith, Explor. & Surv. Railroad Route from Mississippi River to Pacific Ocean 2: 29. 1857.

TYPE: Near Green River, Emery Co., Utah, 1 Oct 1853, *Creutzfeldt s.n.* (NY).

STATUS: Endemic, local and restricted; neither endangered nor threatened.

DISTRIBUTION: Emery, Garfield, and Grand counties, Utah.

This form of *Eriogonum corymbosum* differs from var. *corymbosum* in having small, usually crenulate leaves, smaller more compact stature, and compact inflorescences.

*Eriogonum corymbosum* Benth. in DC. var. *revealianum* (Welsh) Reveal, stat. & comb. nov., based on *E. revealianum* Welsh, Great Basin Nat. 30: 17. 1970.

TYPE: Gravelly, boulder-strewn, east-facing slope near the head of the canyon at milepost 26 south of Antimony along Utah Highway 22, Garfield Co., Utah, 4 Sep 1969, S. L. & S. L. Welsh 9389 (BRY).

STATUS: Endemic, rare and local; endangered.

DISTRIBUTION: Garfield Co., Utah; known only from the type locality.

This form of *Eriogonum corymbosum* differs from var. *corymbosum* in having elongated, entire leaves concentrated near the base of elongated flowering stems and open, spreading inflorescences.

*Eriogonum cronquistii* Reveal, Madroño 19: 289. 1969.

TYPE: Loose decomposed granite talus slopes on the west side of Bull Mtn., Henry Mts., Garfield Co., Utah, 14 Aug 1967, 8,300 feet, *Holmgren & Reveal 3010* (UTC).

STATUS: Endemic, restricted and local; endangered (Ripley, E).

DISTRIBUTION: Garfield Co., Utah; known only from the type locality (BRY, NY, UTC).

*Eriogonum desertorum* (Maguire) R. J. Davis, Fl. Idaho 246. 1952, based on *E. chrysocephalum* ssp. *desertorum* Maguire, Leafl. W. Bot. 3: 11. 1941.

STATUS: Restricted and rare; possibly threatened.

DISTRIBUTION: Box Elder and Tooele counties, Utah; northeastern Nevada and southern Idaho (Reveal 1973a).

*Eriogonum ephedroides* Reveal, Madroño 19: 295. 1969.

TYPE: Ca 10 miles south of Bonanza along Utah Highway 45 south of the White River, 25 Jul 1965, *Holmgren et al. 2265* (UTC).

STATUS: Uinta Basin endemic, restricted and rare; endangered (Ripley, E).

DISTRIBUTION: Uintah Co., Utah (BRY, UTC), and Rio Blanco Co., Colorado (NY).

*Eriogonum eremicum* Reveal, Phytologia 23: 165. 1972.

TYPE: Ca 17 miles southeast of Garrison along Utah Highway 21, Millard Co., Utah, 23 Jul 1965, *Holmgren et al. 2247* (UTC).

STATUS: Endemic, restricted and rare; threatened (Ripley, T).

DISTRIBUTION: Millard Co., Utah (BRY, UTC).

*Eriogonum fasciculatum* Benth. var. *polifolium* (Benth. in DC.) Torr. & Gray, Proc. Amer. Acad. Arts 8: 169. 1870, based on *E. polifolium* Benth. in DC., Prodr. 14: 12. 1856.

STATUS: Local and common to abundant, neither threatened nor endangered.

DISTRIBUTION: Emery (BRY, UT; where rare) and Washington (where common) counties, Utah; widespread and common in Arizona, Nevada, California, and Baja California, Mexico.

*Eriogonum grayi* Reveal, Phytologia 25: 193. 1973.

TYPE: Lake Blanche, Salt Lake Co., Utah, 15 Aug 1947, *Holmgren et al. 7121* (UTC).



STATUS: Endemic, disjunct and infrequent.

DISTRIBUTION: Juab, Salt Lake, Utah, and Weber counties, Utah (BRY, WSCO, UTC; Reveal 1973a).

*Eriogonum humivagans* Reveal, Madroño 19: 219. 1969.

TYPE: Ca 13.5 miles east of Monticello, 13 Aug 1966, 6,800 feet, *Holmgren & Reveal 3001* (UTC).

STATUS: Endemic, restricted and rare; endangered (Ripley, E).

DISTRIBUTION: San Juan Co., Utah; known only from the type locality.

*Eriogonum hylophilum* Reveal & Brotherston. Great Basin Nat. 27: 190. 1968.

TYPE: Along Utah Highway 53 in Gate Canyon, 2.7 miles southwest of the summit of the Badlands Cliffs, Duchesne Co., Utah, 15 Aug 1966, 6,500 feet, *Holmgren & Reveal 3017* (UTC).

STATUS: Endemic, rare and restricted; endangered (Ripley, E).

DISTRIBUTION: Duchesne Co., Utah (Reveal 1968a; 1973a).

*Eriogonum intermontanum* Reveal, Madroño 19: 293. 1969.

TYPE: Ca 1.5 miles south of the Utah Co. line at the head of Middle Canyon of West Water Creek drainage in Roan Cliffs, Grand Co., Utah, 27 Jul 1965, 8,400 feet, *Holmgren et al. 2278* (UTC).

STATUS: Endemic, rare and local; endangered (Ripley, E).

DISTRIBUTION: Grand Co., Utah (BRY, UTC).

*Eriogonum jamesii* Benth. in DC. var. *rupicola* Reveal, Phytologia 25: 202. 1973.

TYPE: Along Utah Highway 15, 4.9 miles west of the east entrance to the park on Checkerboard Mesa, Zion N.P., Washington Co., Utah, 12 Aug 1972, *Reveal & Reveal 2874* (US).

STATUS: Endemic, restricted and rare; threatened (Ripley, T).

DISTRIBUTION: Kane and Washington counties, Utah (Reveal 1973a).

*Eriogonum lancifolium* Reveal & Brotherston, Great Basin Nat. 27: 188. 1968.

TYPE: On low hills 5 miles east of Wellington, Carbon Co., Utah, 9 Sep 1967, *Reveal & Davidse 957* (UTC).

STATUS: Endemic, restricted and local; threatened (Ripley, E).

DISTRIBUTION: Carbon Co., Utah (BRY, US, UTC).

*Eriogonum leptocladon* Torr. & Gray in Beckwith, Explor. & Surv. Railroad Route from Mississippi River to Pacific Ocean 2: 129. 1857.

TYPE: Near the Green River, Emery Co., Utah, 1 Oct 1853, *Creutzfeldt s.n.* (NY).

STATUS: Endemic, edaphically restricted but locally abundant and neither threatened nor endangered. Our plant is var. *leptocladon*.

DISTRIBUTION: Emery, Garfield, Grand, San Juan, and Wayne counties, Utah (BRY, UTC; Reveal 1966).

*Eriogonum leptophyllum* (Torr. & Gray) Wootton & Standley, Contr. U.S. Natl. Herb. 16: 118. 1913, based on *E. efusum* var. *leptophyllum* Torr. in Sitgr., Rep. Exped. Down Zuñi & Colorado rivers 168. 1853.

STATUS: Local and rare; threatened.

DISTRIBUTION: San Juan Co., Utah (*Harrison 12163* [BRY]); southwestern Colorado, northeastern Arizona and adjacent New Mexico (Reveal 1968a).

*Eriogonum loganum* A. Nels., Bot. Gaz. 54: 149. 1912.

TYPE: Logan, Cache Co., Utah, 26 Jun 1909, *Smith 1704* (RM).

STATUS: Endemic, extremely restricted and rare; endangered (Ripley, E).

DISTRIBUTION: Cache Co., Utah (BRY, UTC).

*Eriogonum nanum* Reveal, Phytologia 25: 194. 1973.

TYPE: Talus slopes and limestone outcrops south of Willard Peak, Box Elder Co., Utah, 31 Aug 1964, 9,500 feet, *Reveal & Holmgren 665* (US).

STATUS: Endemic, restricted and rare; threatened (Ripley, T).

DISTRIBUTION: Box Elder and Weber counties, Utah (BRY, UTC, WSCO).

*Eriogonum natum* Reveal, spec. nov.

A *Eriogono brevicaule* Nutt. differt foliis ellipticis, 2-2.5 (3) cm longis et (8) 10-13 (15) mm latis, lanatis, inflorescentiis cymoso-umbellatis, floribus flavis, 2-2.5 (3) mm longis, glabris.

Spreading herbaceous perennials 1-3.5

dm high, 1-4 dm across, with a short woody caudex arising from a stoutish, woody taproot; leaves essentially basal, the leaf-blade elliptic, 2-2.5 (3) cm long, (8) 10-13 (15) mm wide, densely tomentose below, somewhat less so and greenish-tomentose above, the petiole (1) 2-3 cm long, tomentose; flowering stems erect to spreading, slender, 1-2 (2.5) dm long, white to greenish-tomentose; inflorescences cymose-umbellate, 3-10 (15) cm long, 3-5 (8) cm wide, trichotomously branched throughout, tomentose; bracts scalelike to foliaceous, ternate, the former 1-3 mm long, tomentose to floccose without, tomentose within, the latter 1-3 per node, linear-lanceolate to lanceolate, 5-10 (12) mm long, (1.5) 2-4 (5) mm wide, tomentose; peduncles lacking; involucre solitary or infrequently in groups of 2, turbinate-campanulate, 2.5-4 mm long, 2-3 mm wide, thinly to densely tomentose without, glabrous within, the 5 acute teeth 0.5-0.8 mm long, usually with a membranaceous margin, the bractlets linear-oblongate, 1.5-3 mm long, fringed with gland-tipped cells, the pedicels 2.5-5 mm long, glabrous; flowers bright yellow with golden yellow bases and golden to greenish midribs, 2-2.5 (3) mm long, glabrous, the tepals oblong to obovate, distinctly keeled at the base and along the midrib of each tepal, united about  $\frac{1}{4}$  to  $\frac{1}{3}$  the length of the flower; stamens exserted, 2.5-4 mm long, the filaments sparsely pilose basally, the anthers yellow, 0.3-0.5 mm long, oblong to oval; achenes light brown, 2-3 mm long, the globose base tapering to a long, 3-angled, slightly roughened beak.

TYPE: UTAH: Millard Co.: Along U.S. Highway 50-6, 46.2 miles east of the Nevada state line and about 43 miles west of Delta, on low white alkaline clay outcrops 50-300 meters north of the highway, ca 0.2 miles east of the dirt road junction to the Antelope Spring-Black Hill Well roads, north-northwest of Sevier Lake, 13 Aug 1975. *Reveal & Reveal 392A*. Holotype, US! Isotypes, ARIZ. ASU, BRY. CAS, COLO. GH. ISC. K. MARY. MO. NY, OKL. OSC. PH. RM. RSA. SMU, TEX. UC. UTC. WTU!

ADDITIONAL SPECIMENS EXAMINED: UTAH: Millard Co.: Ca 43 miles west of Delta, 30 Aug 1975, *Reveal & Reveal 3999* (BRY. CAS, GH. NY, OKL. RSA. US. UTC); ca 29.8 miles west of Delta, 30 Aug

1975, *Reveal & Reveal 4000* (ARIZ. ASU, BRY. CAS, GH, ISC. MARY. MO. NY, OKL, OSC, RM, RSA, SMU, TEX, US, UTC, WTU).

*Eriogonum natum* belongs to the large species group typified by *E. brevicaulis* and is seemingly most closely related to *E. brevicaulis* var. *cottamii* (S. Stokes) Reveal, a narrowly restricted variant of the piñon-juniper woodlands of north central Utah. The new species differs from var. *cottamii* in having longer and broader elliptical leaves, a longer but less branched inflorescence, and smaller flowers. The new species is restricted to the white alkaline beaches of Sevier Lake and is currently known for the two locations cited above.

*Eriogonum natum* is named to honor its discoverer, Mark L. Reveal (1961- ).

STATUS: Endemic, rare and threatened.

DISTRIBUTION: Millard Co., Utah.

*Eriogonum nummulare* M. E. Jones, Contr. W. Bot. 11: 13. 1903.

TYPE: Dutch Mtn., Tooele Co., Utah, 15 Jun 1900, *M. E. Jones s.n.* (POM).

STATUS: Endemic, rare and seemingly local.

DISTRIBUTION: Juab, Millard, and Tooele counties, Utah (Reveal 1973a).

*Eriogonum ostlundii* M. E. Jones, Contr. W. Bot. 11: 12. 1903.

TYPE: Near Joseph City, Sevier Co., Utah, 13 Jun 1898, *M. E. Jones s.n.* (POM).

STATUS: Endemic, restricted and local; threatened (Ripley, T).

DISTRIBUTION: Piute and Sevier counties, Utah (Reveal 1973a).

*Eriogonum panguicense* (M. E. Jones) Reveal, Proc. Utah Acad. Sci. 42: 291. 1966, based on *E. pauciflorum* var. *panguicense* M. E. Jones, Contr. W. Bot. 11: 9. 1903.

TYPE: Panguitch, Garfield Co., Utah, 24 Jun 1890, *M. E. Jones s.n.* (POM).

STATUS: Endemic, restricted and local.

DISTRIBUTION: Garfield, Iron, Kane, Sevier, and Washington counties, Utah (Reveal 1966; 1973a).

*Eriogonum panguicense* (M. E. Jones) Reveal var. *alpestre* (S. Stokes) Reveal, Proc. Utah Acad. Sci. 42: 292. 1966.

based on *E. chrysocephalum* ssp. *alpestre* S. Stokes, Gen. Eriog. 93. 1936.

TYPE: Cedar Breaks N.M., Iron Co., Utah, 18 Jul 1930, *Goodman & Hitchcock 1601* (CAS).

STATUS: Endemic, rare and local; threatened (Ripley, T).

DISTRIBUTION: Iron Co., Utah (BRY, US, UTC).

*Eriogonum pharnaccoides* Torr. in Sitgr. var. *cervinum* Reveal, Great Basin Nat. 34: 245. 1974.

TYPE: Foothills south of Pinto on the north slope of the Pine Valley Mts., 18 Aug 1973, *Atwood & Higgins 5895* (US).

STATUS: Rare, in disjunct populations.

DISTRIBUTION: Millard and Washington counties, Utah, and in Mohave Co., Arizona, and Lincoln Co., Nevada (Reveal 1974).

*Eriogonum plumatella* Dur. & Hilg., J. Acad. Nat. Sci. Philadelphia II, 3: 45. 1855.

STATUS: Probably extirpated from Utah.

DISTRIBUTION: "Utah" (*Palmer s.n.* [GH]); infrequent and widely scattered in northwestern Arizona, southern Nevada and southeastern California.

*Eriogonum saurinum* Reveal, Great Basin Nat. 27: 197. 1968.

TYPE: Along the Island Park road, 10 miles east of Vernal along Brush Creek on steep hillsides on the ridges, Uintah Co., Utah, 15 Aug 1966, 5,200 feet, *Holmgren & Reveal 3019* (UTC).

STATUS: Edaphically restricted; threatened (Ripley, T).

DISTRIBUTION: Uintah Co., Utah, and adjacent northwestern Colorado (Reveal 1973a).

*Eriogonum smithii* Reveal, Great Basin Nat. 24: 202. 1968.

TYPE: Between Little Flat Top and Big Flat Top, San Rafael Desert, ca 10 miles southeast of Utah Highway 24, Emery Co., Utah, 14 Aug 1966, 5,500 feet, *Holmgren & Reveal 3012* (UTC).

STATUS: Endemic, edaphically restricted and local; threatened (Ripley, T).

DISTRIBUTION: Emery Co., Utah (BRY, UTC).

*Eriogonum spathulatum* A. Gray, Proc. Amer. Acad. Arts 10: 76. 1874.

TYPE: Lower Valley of the Sevier River, Sevier Co., Utah, Jul 1874, *Parry 245* (GH).

STATUS: Endemic and scattered in isolated populations, but neither threatened nor endangered.

DISTRIBUTION: Beaver, Iron, Millard, Piute, Sanpete, and Sevier counties, Utah (Reveal 1973a).

*Eriogonum thompsonae* S. Wats., Amer. Naturalist 7: 302. 1873.

TYPE: Sandstone cliffs near Kanab, Kane Co., Utah, 1872. *Thompson s.n.* (GH).

STATUS: Arizona strip endemic, restricted and rare; threatened (Ripley, T).

DISTRIBUTION: Kane and Washington counties, Utah (BRY, MARY, UTC), and Mohave Co., Arizona (BRY, CAS, US, UTC).

*Eriogonum thompsonae* S. Wats. var. *albiflorum* Reveal, Madroño 19: 299. 1969.

TYPE: Ca 3 miles west of Virgin, Washington Co., Utah, 11 Aug 1966, 3,700 feet, *Holmgren & Reveal 2991* (UTC).

STATUS: Endemic, edaphically restricted and threatened (Ripley, T).

DISTRIBUTION: Washington Co., Utah (BRY, UTC).

*Eriogonum tumulosum* (Barneby) Reveal, Phytologia 23: 173. 1972, based on *E. villiflorum* A. Gray var. *tumulosum* Barneby, Leaf. W. Bot. 5: 153. 1949.

TYPE: Sandstone ledges and rock-pavement on Red Plateau, southwest of Woodside, Emery Co., Utah, 13 Jun 1947, *Ripley & Barneby 8678* (CAS).

STATUS: Restricted and very local in disjunct populations.

DISTRIBUTION: Duchesne and Emery counties, Utah, and in Moffat Co., Colorado (CS).

*Eriogonum umbellatum* Torr. Var. *deserticum* Reveal, var. nov. A var. *umbellato* foliis glabris et floribus stramineis differt.

TYPE: UTAH: Utah Co.: Along the Timpooneke Road, 1 mile northwest of Utah Highway 80, near Timpooneke Campground, east of Mt. Timpanogos,

associated with *Quercus*, *Populus* and *Artemisia* at about 7,600 feet, 10 Jul 1974, *Reveal 3702*. Holotype, us! Iso-types, BRY, CAS, GH, MARY, MO, NY, OKL, UTC!

STATUS: Endemic, locally common, but neither threatened nor endangered.

DISTRIBUTION: Juab, Salt Lake, Sanpete, Tooele, Utah, and Wasatch counties, Utah.

This form of *Eriogonum umbellatum* has been confused with var. *dichrocephalum* Gandoger which has leaves pubescent at least on the lower surface.

*Eriogonum viridulum* Reveal, Proc. Utah Acad. Sci. 42: 287. 1966.

TYPE: Ca 8 miles east of Duchesne along U.S. Highway 40, Duchesne Co., Utah, 2 Sep 1964, *Reveal 675* (UTC).

STATUS: Uinta Basin endemic, restricted and local; threatened (Ripley, T).

DISTRIBUTION: Duchesne and Uintah counties, Utah, and Moffat Co., Colorado (Reveal 1973a).

*Eriogonum zionis* J. T. Howell, Leaf. W. Bot. 2: 253. 1940.

TYPE: Zion N.P. along the Mt. Carmel highway in the canyon of Clear Creek, Washington Co., Utah, 8 Sep 1938, *Eastwood & Howell 6344* (CAS).

STATUS: Endemic, rare and local; endangered (Ripley, E).

DISTRIBUTION: Kane and Washington counties, Utah (for var. *zionis*), with var. *coccineum* J. T. Howell restricted to northern Arizona.

*Polygonum utahense* Brenckle & Cottam, Bull. Univ. Utah, Biol. Ser. 4(4):3. 1940.

TYPE: Ca 6 miles north of Escalante, Garfield Co., Utah, 17 Sep 1935, *Cottam 6507* (UT).

STATUS: Endemic; species of uncertain taxonomic status.

DISTRIBUTION: Garfield Co., Utah (BRY, UT); known only from the type locality.

#### POLYPODIACEAE

*Asplenium adiantum-nigrum* L., Sp. Pl. 1081. 1753.

STATUS: Rare and local; status uncertain within Utah as not collected since the 1930s (Flowers 1944).

DISTRIBUTION: Washington Co., Utah; widespread in Eurasia, known only from three locations in the United States (Cronquist et al. 1972).

*Asplenium resiliens* Kunze, Linnaea 18: 331. 1844, based on *A. parvulum* Martens & Galeotti, Mém. Foug. Mex. 60. 1842, not Hook.

STATUS: Local and rare; possibly threatened.

DISTRIBUTION: San Juan Co., Utah (Flowers 1965); widespread in North and South America.

*Asplenium septentrionale* L., Sp. Pl. 1068. 1753.

STATUS: Rare and obscure; possibly endangered.

DISTRIBUTION: Daggett (*Wicboldt 1460A* [UTC]) and Grand (Maguire 1935) counties, Utah; circumboreal.

*Notholaena jonesii* Maxon, Amer. Fern. J. 7: 108. 1917.

STATUS: Restricted and rare; possibly threatened.

DISTRIBUTION: Washington Co., Utah (Maxon 1917); Arizona and southern California (Flowers 1944; Cronquist et al. 1972).

#### PORTULACACEAE

*Calyptridium monandrum* Nutt. ex Torr. & Gray, Fl. N. Amer. 1: 198. 1838.

STATUS: Rare and restricted; possibly threatened.

DISTRIBUTION: Washington Co., Utah (BRY); also Arizona and California, and Baja California, Mexico.

*Talinum validulum* Greene, Leaf. Bot. Observ. Crit. 2: 270. 1912.

STATUS: Rare and obscure; possibly threatened.

DISTRIBUTION: Emery Co., Utah (BRY); Coconino Co., Arizona.

#### PRIMULACEAE

*Primula incana* M. E. Jones, Proc. Calif. Acad. Sci. 11, 5: 706. 1895.

TYPE: Beaver Co-op Ranch, at the head of the South Fork of the East Fork of the Sevier River, Garfield Co., Utah, in cold bogs, 7,000 feet. *M. E. Jones 5312av* (POM).

STATUS: Rare and possibly extirpated in the type area; threatened.

DISTRIBUTION: Daggett and Garfield counties, Utah (Cosgriff 1968); widespread in northwestern North America (Welsh 1974b).

*Primula maguirei* L. O. Williams, Amer. Midl. Naturalist 17: 747. 1936.

TYPE: Damp overhanging rock ledges and cracks, 5 miles up Logan Canyon, Cache Co., Utah, 19 Apr 1932, Maguire & Maguire 3650 (MO).

STATUS: Endemic, rare and threatened (Ripley, T).

DISTRIBUTION: Cache Co., Utah (UTC).

*Primula specuicola* Rydb., Bull. Torrey Bot. Club 40: 461. 1913.

TYPE: Along the San Juan River near Bluff, San Juan Co., Utah, 25-29 Aug 1911, Rydberg 9882 (NY).

STATUS: Restricted habitatwise, local and threatened (Ripley, T).

DISTRIBUTION: Garfield (UT), Grand, Kane, San Juan, and Wayne counties, Utah, and in northern Arizona (Cosgriff 1968; McDougall 1973).

#### RANUNCULACEAE

*Aquilegia micrantha* Eastw., Proc. Calif. Acad. Sci. II, 4: 559. 1895.

TYPE: Near Bluff, San Juan Co., Utah, Jul 1894, Wetherill s.n. (CAS).

STATUS: Restricted habitatwise, local but not threatened nor endangered.

DISTRIBUTION: Emery, Garfield, Grand, Kane, and San Juan counties, Utah (BRY); also in Arizona and Colorado.

*Ranunculus acriformis* A. Gray var. *aestivalis* L. Benson, Amer. Midl. Naturalist 40: 43. 1948.

TYPE: Meadow at springs just east of U.S. Highway 89 and 300 yards west of the Sevier River, 8.3 miles north of the principal intersection in Panguitch and about 1.5 miles south of the intersection with Utah Highway 20 leading to Parowan, Garfield Co., Utah, 29 Aug 1948, 6,400 feet, Benson 13420 (POM).

STATUS: Endemic and presumed to be extinct (Ripley, PoEx).

DISTRIBUTION: Garfield Co., Utah (BRY); known only from the type locality.

#### ROSACEAE

*Chamaerhodos erecta* (L.) Bunge in Ledeb., Fl. Altaica 1: 430. 1829, based on *Sibbaldia erecta* L., Sp. Pl. 1: 284. 1753.

STATUS: Rare and local, altitudinally restricted.

DISTRIBUTION: Piute and Wayne counties, Utah (BRY); also from Colorado, North Dakota and Michigan, north to Yukon and Alaska; Asia (Welsh 1974b).

*Crataegus chrysocarpa* Ashe, North Carolina Agric. Exp. Sta. Techn. Publ. 175: 110. 1900, based on *C. rotundifolia* Moench, Verz. Ausl. Baume Staud Weiss 29. 1785, not Lam.

STATUS: Rare and threatened.

DISTRIBUTION: Cache Co., Utah (Maguire 1937); widespread elsewhere.

*Crataegus succulenta* Schrader ex Link, Handbuch 2: 78. 1831.

STATUS: Local and rare; threatened.

DISTRIBUTION: Utah Co., Utah (BRY, UTC; Barnes 1943); widespread to the east of Utah (Little 1953).

*Ivesia sabulosa* (M. E. Jones) Keck, Lloydia 1: 124. 1938, based on *Pontentilla sabulosa* M. E. Jones, Proc. Calif. Acad. Sci. II, 5: 680. 1895.

TYPE: Head of the Sevier River, probably in Garfield Co., Utah, 11 Sep 1894, 8,000 feet, M. E. Jones 6032 (POM).

STATUS: Rare and local, possibly threatened.

DISTRIBUTION: Garfield and Washington counties, Utah (BRY), and Nye Co., Nevada (Keck 1938b).

*Ivesia utahensis* S. Wats., Proc. Amer. Acad. Arts 17: 371. 1882.

TYPE: On the summit of Bald Mountain, in Wasatch Range, above Alta, Salt Lake Co., Utah, Aug 1879, over 12,000 feet, M. E. Jones 1231 (GH).

STATUS: Endemic, rare and local.

DISTRIBUTION: Salt Lake, Summit, and Utah counties, Utah (Keck 1938b).

*Rubus neomexicanus* A. Gray, Smithsonian Contr. Knowl. 5: 55. 1853.

STATUS: Local, rare and threatened.

DISTRIBUTION: San Juan Co., Utah (BRY); New Mexico, Arizona, and northern Mexico.



Most of the known range of this species has been destroyed by Lake Powell.

## RUBIACEAE

*Galium multiflorum* Kellogg var. *watsonii* A. Gray, Syn. Fl. N. Amer. 1: 40. 1884.

TYPE: Wasatch Mts., Utah, 1869, *Watson 484* (GH).

STATUS: Endemic, neither threatened nor endangered.

DISTRIBUTION: Box Elder, Cache, Davis, Tooele, and Utah counties, Utah (Dempster & Ehrendorfer 1965).

*Galium scabruisculum* (Ehrendorfer) Dempster & Ehrendorfer, *Brittonia* 17: 312. 1965, based on *G. hypotrichium* ssp. *scabruisculum* Ehrendorfer, *Contr. Dudley Herb.* 5: 13. 1956.

TYPE: Calf Springs Wash, San Rafael Swell, Emery Co., Utah, *Maguire 18437* (GH).

STATUS: Endemic, neither threatened nor endangered.

DISTRIBUTION: Carbon and Emery counties, Utah.

## RUTACEAE

*Ptelea trifoliata* L. ssp. *pallida* (Greene) V. L. Bailey, *Brittonia* 14: 23. 1962, based on *P. pallida* Greene, *Contr. U. S. Natl. Herb.* 10: 70. 1906.

STATUS: Rare and possibly extirpated.

DISTRIBUTION: Garfield and Kane counties, Utah; this subspecies also in Arizona and Colorado (Bailey 1962).

## SCROPHULARIACEAE

*Castilleja aquariensis* N. H. Holmgren, *Bull. Torrey Bot. Club* 100: 87. 1973.

TYPE: Aquaris Plateau, 22 miles northwest-north of Escalante on the road to Bicknell, 0.5 mile north of Clayton Guard Station turnoff, Garfield Co., Utah, 11 Aug 1970, 9,600 feet, *Holmgren & Holmgren 4726* (NY).

STATUS: Endemic, rare and local; endangered (Ripley, E).

DISTRIBUTION: Garfield Co., Utah; known only from the type area.

*Castilleja leonardii* Rydb., *Bull. Torrey Bot. Club* 34: 36. 1907.

TYPE: Head of American Fork Can-

yon, Utah Co., Utah, 1885, *Leonard 151* (NY).

STATUS: Endemic, locally common but neither threatened nor endangered.

DISTRIBUTION: Cache, Daggett, Davis, Duchesne, Salt Lake, Sanpete, Summit, Tooele, Utah, and Wasatch counties, Utah (BRY, UT).

*Castilleja parvula* Rydb., *Bull. Torrey Bot. Club* 34: 40. 1907.

TYPE: Mountains north of Bullion Creek near Marysville, Piute Co., Utah, 1905, *Rydberg & Carlton 7158* (NY).

STATUS: Endemic, rare and local; threatened (Ripley, T).

DISTRIBUTION: Piute Co., Utah (NY, UTC).

*Castilleja revealii* N. H. Holmgren, *Bull. Torrey Bot. Club* 100: 87. 1973.

TYPE: Bryce Canyon N.P., along the road to Bryce Point, 0.5 mile from Inspiration Point turnoff, Garfield Co., Utah, 24 Jun 1965, 8,000 feet, *Holmgren & Reveal 2017* (NY).

STATUS: Endemic, rare and local; endangered (Ripley, E).

DISTRIBUTION: Garfield Co., Utah; known only from the type locality.

*Mimulus castwoodiae* Rydb., *Bull. Torrey Bot. Club* 40: 483. 1913.

TYPE: In crevices of perpendicular or overhanging rocks along the San Juan River near Bluff, 25-29 Aug 1911, *Rydberg 9883* (NY).

STATUS: Edaphically restricted, local and disjunct; not threatened nor endangered.

DISTRIBUTION: Grand, Kane, and San Juan counties, Utah (BRY), and adjacent northern Arizona (Kearney & Peebles 1951).

*Penstemon abietinus* Pennell, *Contr. U.S. Natl. Herb.* 20: 276. 1920.

TYPE: Ireland Ranch, head of Salina Canyon, Sevier Co., Utah, 15 Jun 1894, 2,400 m. *M. E. Jones 5440* (US).

STATUS: Endemic, rare and local; threatened (Ripley, T).

DISTRIBUTION: Iron (UT), Sevier, and Utah counties, Utah (BRY; Keck 1937a).

*Penstemon acaulis* L. O. Williams, *Ann. Missouri Bot. Gard.* 21: 345. 1934.

STATUS: Restricted, rare and threatened (Ripley, T).

- DISTRIBUTION: Daggett Co., Utah (NY, US, UTC) and adjacent Sweetwater Co., Wyoming (Keck 1937a).
- Penstemon atwoodii* Welsh, Great Basin Nat. 35: 378. 1976.  
 TYPE: South end of Horse Mtn., ca 10 miles south-southeast of Canaan Peak, Kane Co., Utah, 14 Jun 1975, S. L. & S. L. Welsh 12820 (BRY).  
 STATUS: Endemic, local and threatened.
- DISTRIBUTION: Garfield and Kane counties, Utah (BRY, NY).
- Penstemon bracteatus* Keck, Leaflet W. Bot. 1: 82. 1934.  
 TYPE: Red Canyon, Garfield Co., Utah, 20 Jun 1933, Eastwood & Howell 783 (CAS).  
 STATUS: Endemic, restricted and rare; possibly threatened.
- DISTRIBUTION: Garfield Co., Utah (BRY).
- Penstemon caespitosus* Nutt. var. *suffruticosus* A. Gray, Syn. Fl. N. Amer. 2: 270. 1878.  
 TYPE: Near Beaver, Beaver Co., Utah, 1877, Palmer s.n. (GH).  
 STATUS: Endemic, restricted and local; threatened (Ripley, T).
- DISTRIBUTION: Beaver, Garfield and Piute counties, Utah (Keck 1937a).
- Penstemon compactus* (Keck) Crosswhite, Amer. Midl. Naturalist 77: 6. 1967, based on *P. cyananthus* ssp. *compactus* Keck, Amer. Midl. Naturalist 23: 615. 1940.  
 TYPE: Stony slopes of Mt. Naomi, Cache Co., Utah, 18 Aug 1938, 2,900 meters, Maguire 16148 (UTC).  
 STATUS: Endemic, restricted and threatened (Ripley, T).
- DISTRIBUTION: Cache Co., Utah (BRY, UTC, WSCO).
- Penstemon concinnus* Keck, Amer. Midl. Naturalist 23: 608. 1940.  
 TYPE: Tunnel Springs, northwest corner of Desert Range Experiment Station boundary, about 10 miles east of Garrison, Millard Co., Utah, 28 Jun 1933, 1,675 meters, Cottam 5635 (DS).  
 STATUS: Endemic, restricted and rare; endangered (Ripley, E).
- DISTRIBUTION: Beaver and Millard counties, Utah (BRY, NY, US, UTC).
- Penstemon garrettii* Pennell, Contr. U.S. Natl. Herb. 20: 353. 1920.  
 TYPE: Crevices in travertine rock, "Hot Pots," near Midway, Wasatch Co., Utah, 6 Jul 1905, Carleton & Garrett 6697 (NY).  
 STATUS: Endemic, restricted and possibly extinct.
- DISTRIBUTION: Duchesne (UT) and Wasatch counties, Utah.
- Penstemon grahamii* Keck in Graham, Ann. Carnegie Mus. 26: 331. 1937.  
 TYPE: Talus slope on the west side of Green River, south of the mouth of Sand Wash, Uintah Co., Utah, 27 May 1933, Graham 7883 (CM).  
 STATUS: Endemic, rare, restricted and endangered (Ripley, E).
- DISTRIBUTION: Uintah Co., Utah (BRY, UTC; Keck 1938a).
- Penstemon humilis* Nutt. ex Gray var. *brevifolius* A. Gray, Syn. Fl. N. Amer. 2: 267. 1878.  
 TYPE: Cottonwood Canyon, Wasatch Mts., Salt Lake Co., Utah, 1869, 9,000-10,000 feet, Watson 781 (GH).  
 STATUS: Endemic, local and possibly threatened.
- DISTRIBUTION: Cache, Juab, Salt Lake, Utah, and Weber counties, Utah (BRY, UT).
- Penstemon humilis* Nutt. ex Gray var. *obtusifolius* (Pennell) Reveal, stat. nov., based on *P. obtusifolius* Pennell, Contr. U.S. Natl. Herb. 20: 370. 1920.  
 TYPE: Springdale, Washington Co., Utah, 16 May 1894, 1,600 meters, M. E. Jones 5249am (pom).  
 STATUS: Endemic, rare and restricted; possibly threatened.
- DISTRIBUTION: Beaver and Washington counties, Utah (Keck 1945).
- Penstemon jonesii* Pennell, Contr. U.S. Natl. Herb. 20: 338. 1920.  
 TYPE: Springdale, Washington Co., Utah, 17 May 1894, M. E. Jones 5250, in part (US).  
 STATUS: Endemic, rare and obscure; taxonomic status questionable.
- DISTRIBUTION: Washington Co., Utah; known only from the type locality.
- Penstemon laevis* Pennell, Contr. U.S. Natl. Herb. 20: 347. 1920.

- TYPE: Red sand at Springdale, Washington Co., Utah, 17 May 1894, 1,200 meters, *M. E. Jones 5250*, in part (US).  
 STATUS: Endemic, restricted and local.  
 DISTRIBUTION: Kane, Garfield, and Washington counties, Utah (BRY, UTC).
- Penstemon leiophyllus* Pennell, Contr. U.S. Natl. Herb. 20: 346. 1920.  
 TYPE: Mammoth Creek, Garfield Co., Utah, 10 Sep 1894, 2,400 meters, *M. E. Jones 6026b* (US).  
 STATUS: Endemic, restricted and local; threatened (Ripley, T).  
 DISTRIBUTION: Garfield, Iron, Kane, and Washington counties, Utah (BRY).
- Penstemon lentus* Pennell var. *albiflorus* (Keck) Reveal, stat. nov., based on *P. lentus* ssp. *albiflorus* Keck, Amer. Midl. Naturalist 23: 616. 1940.  
 TYPE: Abajo Mts., ca 8 miles west of Blanding, near the "Bear's Ears," San Juan Co., Utah, 9 Jun 1938, 2,400 meters, *C. L. Porter 1801* (RM).  
 STATUS: Endemic, locally common and not threatened.  
 DISTRIBUTION: San Juan Co., Utah (BRY).
- Penstemon leonardii* Rydb., Bull. Torrey Bot. Club 40: 483. 1913.  
 TYPE: Diehl's Grove, Wasatch Mts., possibly Utah Co., Utah, 1 Aug 1884, *Leonard s.n.* (NY).  
 STATUS: Endemic, locally common and not threatened nor endangered.  
 DISTRIBUTION: Cache, Davis, Rich, Salt Lake, Summit, Uintah, Utah, Wasatch, Washington, and Weber counties, Utah (BRY, UT).
- Penstemon longiflorus* (Pennell) S. L. Clark, Great Basin Nat. 35: 434. 1976, based on *P. cyananthus* ssp. *longiflorus* Pennell, Contr. U.S. Natl. Herb. 20: 353. 1920.  
 TYPE: Beaver, Beaver Co., Utah, *Palmer 376* (NY).  
 STATUS: Endemic, restricted but locally common.  
 DISTRIBUTION: Beaver, Millard, and Piute counties, Utah (BRY).
- Penstemon nanus* Keck, Amer. Midl. Naturalist 23: 607. 1940.  
 TYPE: Desert Range Experiment Station, about 10 miles east of Garrison, Millard Co., Utah, 13 May 1939, 1,675 meters, *Plummer 7313* (DS).  
 STATUS: Endemic, restricted and local; threatened (Ripley, E).  
 DISTRIBUTION: Beaver and Millard counties, Utah (BRY, UTC).
- Penstemon parvus* Pennell, Contr. U.S. Natl. Herb. 20: 345. 1920.  
 TYPE: The Button, Aquarius Plateau, Wayne Co., Utah, 11 Aug 1875, *Ward 546* (US).  
 STATUS: Endemic, restricted and rare; threatened (Ripley, T).  
 DISTRIBUTION: Garfield and Wayne counties, Utah, (BRY; Pennell 1920).
- Penstemon sepalulus* Rydb., Bull. Torrey Bot. Club 36: 690. 1909.  
 TYPE: Canyons of the Wasatch Mts., Provo Canyon, Utah Co., Utah, Jul 1869, *Watson 786* (NY).  
 STATUS: Endemic, locally abundant.  
 DISTRIBUTION: Utah Co., Utah (BRY; Keck 1932).
- Penstemon tidestromii* Pennell, Contr. U.S. Natl. Herb. 20: 379. 1920.  
 TYPE: "XL" Canyon, San Pitch Mts., Sanpete Co., Utah, 24 Jun 1908, 1,650 meters, *Tidestrom 1296* (US).  
 STATUS: Endemic, local and obscure; taxonomic status questionable.  
 DISTRIBUTION: Sanpete Co., Utah; known only from the type locality.
- Penstemon uintahensis* Pennell, Contr. U.S. Natl. Herb. 20: 350. 1920.  
 TYPE: Dyer Mine, Uinta Mts., Uintah Co., Utah, 30 Jun 1902, *Goodding 1221* (NY).  
 STATUS: Endemic, rare and restricted; threatened (Ripley, T).  
 DISTRIBUTION: Daggett, Duchesne, and Uintah counties, Utah (BRY).
- Penstemon wardii* A. Gray, Proc. Amer. Acad. Arts 12: 82. 1876.  
 TYPE: Near Glenwood, Sevier Co., Utah, 4 Jun 1875, *Ward 162* (US).  
 STATUS: Endemic, restricted and local; threatened (Ripley, T).  
 DISTRIBUTION: Sanpete and Sevier counties, Utah (BRY, UTC).
- Syntheris laciniata* (A. Gray) Rydb. ssp. *ibapahensis* Pennell, Proc. Acad. Nat. Sci. Philadelphia 85: 92. 1933.  
 TYPE: Wet gravelly slopes near ravine of snow on Mount Ibapah, Juab

Co., Utah, 5 Jul 1932, 9,500-10,000 feet, *Stanton 1000* (PH).

STATUS: Endemic, restricted and obscure; taxonomic status questionable.

DISTRIBUTION: Juab Co., Utah; known only from the type locality.

#### SELAGINELLACEAE

*Selaginella utahensis* Flowers, Amer. Fern J. 39: 83. 1949.

TYPE: South of St. George, Washington Co., in a wash bottom, 5 Apr 1931, *Cottam 5644* (UT).

STATUS: Rare and local; possibly threatened.

DISTRIBUTION: Washington Co., Utah, and Spring Mts., Clark Co., Nevada (Cronquist et al. 1972).

#### VERBENACEAE

*Aloysia wrightii* (A. Gray) A. A. Heller, *Muhlenbergia* 1: 147. 1906, based on *Lippa wrightii* A. Gray, Amer. J. Sci. II, 16: 98. 1853.

STATUS: Local and rare; possibly endangered.

DISTRIBUTION: Washington Co., Utah (*Higgins 615* [BRY]; *Higgins 1972b*); from Texas to California and in northern Mexico.

#### VIOLACEAE

*Viola purpurea* Kellogg var. *charlestonensis* (Baker & Clausen) Welsh & Reveal, stat. & comb. nov., based on *V. charlestonensis* Baker & Clausen in Clokey, *Madroño* 8: 58. 1945.

STATUS: Restricted, local and rare; threatened (Ripley, T).

DISTRIBUTION: Washington Co., Utah, and Clark Co., Nevada (Clokey 1945; Eastmond 1969).

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<sup>11</sup>The abbreviation cited throughout this paper for this publication should be "Great Basin Naturalist" according to Lawrence et al. (1968) and not "Great Basin Nat." This is the only abbreviation cited in the paper that does not conform with standardized list.

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